THE
25
CENTS

AMERICAN RIFLEMAN

OCTOBER
1945

Peter Peepsight welcomes a returning SERVICEMAN

HEY, GANG, REMEMBER LITTLE JEFF JONES? IT'S SERGEANT JONES NOW! JUST BACK FROM THE PACIFIC!
GEE LOOK AT THOSE MEDALS! ONE FOR EXPERT RIFLEMAN TOO!
SAY, WE NEED SOME NEW MEMBERS AROUND HERE WHO CAN SHOOT!
SPEAK FOR YOURSELF, SLIM!
COME ON, JEFF! SHOW US HOW YOU WON THAT MEDAL!
AW, SHUCKS, FELLOWS--
PUT UP A TARGET, SOMEBODY!
NOW WE'LL SEE SOME REAL SHOOTING!
JUST MAKE BELIEVE YOU'RE IN THE SOUTH PACIFIC, JEFF, AND YOU CAN'T MISS!
QUIET, YOU GUYS! GIVE THE SARGE A CHANCE!
QUIET? HE'S USED TO NOISE WITH HIS SHOOTING. LOOK AT THAT! ALL IN THE BLACK--AND OFFHAND, TOO!
QUICK! SIGN HIM UP AS A LIFE MEMBER OF THE CLUB!
BETTER THAN THAT, LET'S PUT HIM ON THE MEMBERSHIP COMMITTEE. BET THERE ARE LOTS OF EX-SERVICEMEN WHO'D LIKE TO JOIN A RIFLE CLUB!
LOOK AT THAT TARGET! THOSE ARMY INSTRUCTORS SURE MUST KNOW THEIR STUFF!
YOU CAN SAY THAT AGAIN!
GOSH! HOW LONG DID IT TAKE YOU TO LEARN TO SHOOT LIKE THAT?
WHEN I WAS A KID, I USED TO COLLECT TARGETS YOU FELLAS THREW AWAY, STICK 'EM UP AND POP THE BULLS OUT OF 'EM WITH PETERS POLICE MATCH* 22S!

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PUBLISHERS OF
THE AMERICAN RIFLEMAN
SCOTT CIRCLE
WASHINGTON 6, D.C.

IMPORTANT AND URGENT!

Dear Member:

No sportsmen's organization in America has directly contributed so much to our victory in World War II as has our own NATIONAL RIFLE ASSOCIATION. Both as a national organization and as individual citizens we have contributed heavily of technical knowledge, manual skills, manpower and, unfortunately, of the lives of our friends and loved ones.

We want to sum up this entire story in a single issue of THE AMERICAN RIFLEMAN magazine. It will be a magazine that will serve as a reference volume on the N.R.A. and World War II for many years to come. It will be the December, 1945 issue of THE AMERICAN RIFLEMAN.

To tell the story as completely as possible we need your personal aid. It has been impossible for us to keep track of all our members and former members and their children during the hectic days since 1941. We need information about their war-time activities in our December summary of the N.R.A. war years is to be complete.

Won't you therefore fill out the inclosed information blank and return it AT ONCE so that the tremendous job of tabulating and compiling essential data can be done by November first, when the monumental December, 1945 issue of THE AMERICAN RIFLEMAN must be placed in the printer's hands.

PLEASE USE THE INFORMATION BLANK If you have additional information of value to our summary of N.R.A. members at war, use a separate sheet attached to the blank but FILL OUT THE BLANK because in no other form can we hope to tabulate the desired data in time for publication in the December "RIFLEMAN".

Thank you in advance for your cooperation. We have a proud story to tell. Let us tell it proudly to Congress and all the world in the December 1945 AMERICAN RIFLEMAN. Hurry, Please!

Cordially yours,

C. B. Lister

C. B. Lister,
Secretary-Treasurer,
NATIONAL RIFLE ASSOCIATION OF AMERICA

Editor,
THE AMERICAN RIFLEMAN.

The NATIONAL RIFLE ASSOCIATION of AMERICA

IN WORLD WAR II

MEMBER'S INFORMATION SHEET

Name..... *Street*.....

City..... *State*..... *Age*.....

If on active service on December 7, 1941 place (x) in proper column

☐ Army ☐ Navy ☐ Marines ☐ Coast Guard.

If member of Reserve on inactive status on December 7, 1941 place (x) in proper column

☐ Army ☐ Navy ☐ Marines ☐ Coast Guard.

If you entered the service after December 1, 1941 place (x) in proper column

☐ Army ☐ Navy ☐ Marines ☐ Coast Guard.

Wounds and Citations:

.....

.....

Specialist Data: If by reason of professional or specialized training you have been able to develop or assist in the development of any project having to do with the training of our fighting men, the improvement of their equipment or ordnance or their recovery from wounds or illness a brief summary will be appreciated.

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Family Data:

If Sons in Service indicate number in each branch:.....

If Daughters in Service indicate number in each branch:.....

If Wife in Service indicate branch:.....

If Father in Service indicate branch:.....

If Mother in Service indicate branch:.....

Casualty Reports and Citations:.....

.....

.....

.....

Former Members: It is known that many formerly active members of the N.R.A. have been killed, wounded or reported missing in action but the Association has not been informed of such casualties. If you are acquainted with any such cases please give the information in this space—

	Branch	*Killed*	*Wounded*	*Missing*
Name.....	.....	.....	.....	.....
Name.....	.....	.....	.....	.....
Name.....	.....	.....	.....	.....
Name.....	.....	.....	.....	.....
Name.....	.....	.....	.....	.....
Name.....	.....	.....	.....	.....
Name.....	.....	.....	.....	.....
Name.....	.....	.....	.....	.....

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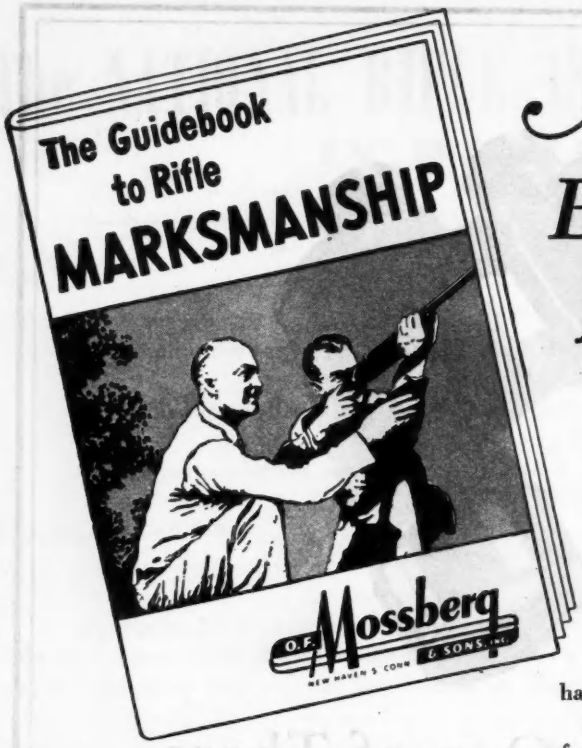

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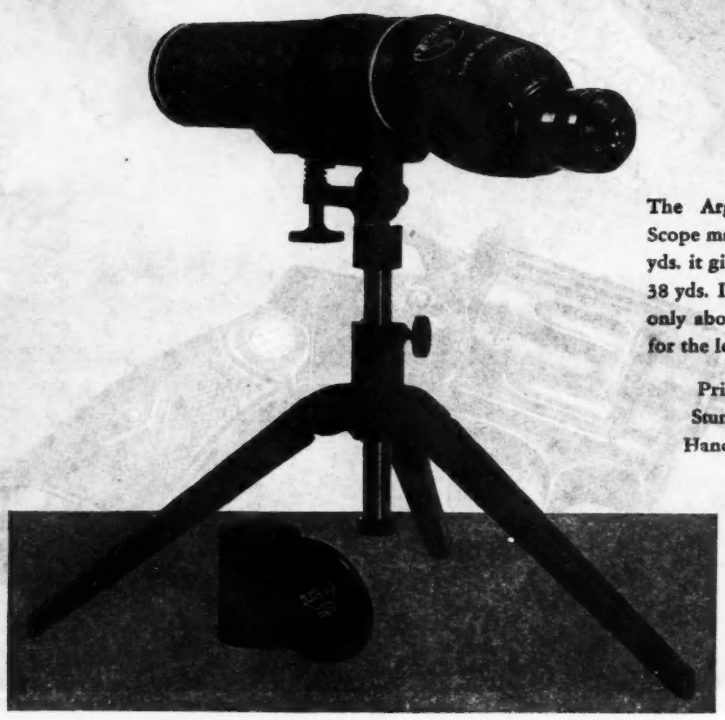

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An Editorial

Officer Education

LAST MONTH we commented on the unfortunate fact that many thousands of responsible Americans—business men, leaders in their communities and future leaders in politics—are leaving the Armed Forces with the feeling that "there is something wrong with the West Point system" of officer training. They believe, rightly or wrongly, that the "West Point clique" looks out for its own interests in the Army in much the same way that undergraduate fraternities dominate the undergraduate life at some civilian colleges. They feel that West Point develops a mental pattern which does not produce the initiative that characterizes the successful leader in civilian life and that is essential to successful leadership in any field. They think that the gulf which separates the average American from the Regular Army is a gap created largely by this West Point mental pattern. Many of these citizen-soldiers are opposed to universal military training solely because they fear the effect of "the West Point system" on the minds of future generations of American youth.

Whether this feeling with regard to West Point and its graduates is justified can be debated with excellent argument pro and con, but something more than debate is called for if the enlarged Army which will be required in the future is to receive the whole-hearted support of the great mass of Americans. The popular conception of West Point as a cloistered academy whose inmates renounce the ways of their civilian contemporaries to become a stiff-backed set of regimental automatons living in mortal fear of "the book" with their hearts set on pleasing the right superior officer so that one day they may retire with reasonable rank to the comfortable hills around San Diego, Leesburg, or Fort Niagara—this conception must be smashed or the postwar army will find itself, once more, the neglected orphan of our national and international life.

The solution of the problem does not appear difficult. Give the army officer the same educational standing and training as is given the doctor, the architect, the engineer. Give him four years of education in civilian colleges with an R.O.T.C. course to find out whether he really wants to become an officer. Give him an opportunity in the competitive atmosphere of the civilian college to develop and display the qualities of initiative and leadership which should be the outstanding characteristics of the American officer. Let him be rated by both civilian and military instructors; and, if he measures up to required standards, commission him a cadet and send him to West Point for one or two years of class room and field training in the purely military angles of the officer's profession. If he completes that course satisfactorily and is commissioned, let his length of service date from his original enrollment in civilian college.

Give each Congressman and Senator two or more "military scholarships," not to the Military Academy but to the State University in their own State. Let patriotic organizations and individuals provide similar scholarships. Allot a reasonable number of such scholarships to the enlisted men in the Regular Army and National Guard.

Of course, many who start their college work with the idea of becoming students at the Point and officers in the Army will fall by the wayside. Some will change their minds. Some will fail to measure up. But many others who possess the desired qualities will become interested in the Army as a career and will develop into good officers though they had no such thought when they first entered college. The net result will be a corps of young officers who are natural leaders, men with initiative, proud of their service but with the varied backgrounds, ideas, and traditions of a thousand communities and a hundred top-flight colleges. Educators who now fear "military regimentation" will cease their squawking as their own students move into places of prominence in the military world. Congressmen will like the opportunity to grant scholarships in their home-state schools. The Corps of Cadets will become a group of post-graduates from the colleges of the whole nation and from the rank and file of the nation's best-qualified young men. Under such circumstances any claim that there was such a thing as a "West Point clique" or a "West Point mentality" would be difficult to sustain. Under such a system it is doubtful if such a claim would ever be made.

The Navy? Certainly the same system could and should be applied.—C. B. L.

The AMERICAN RIFLEMAN

Official Journal of The National Rifle Association of America

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Published monthly by National Rifle Association of America, 1600 Rhode Island Avenue, Washington 6, D. C. Domestic rates (North, South, and Central America) $3.00 a year; $5.00 for two years. Elsewhere, $3.50 a year; $6.50 for two years. Entered as second-class matter, April 1, 1908, at the Post Office at Washington, D. C., under Act of March 3, 1879.

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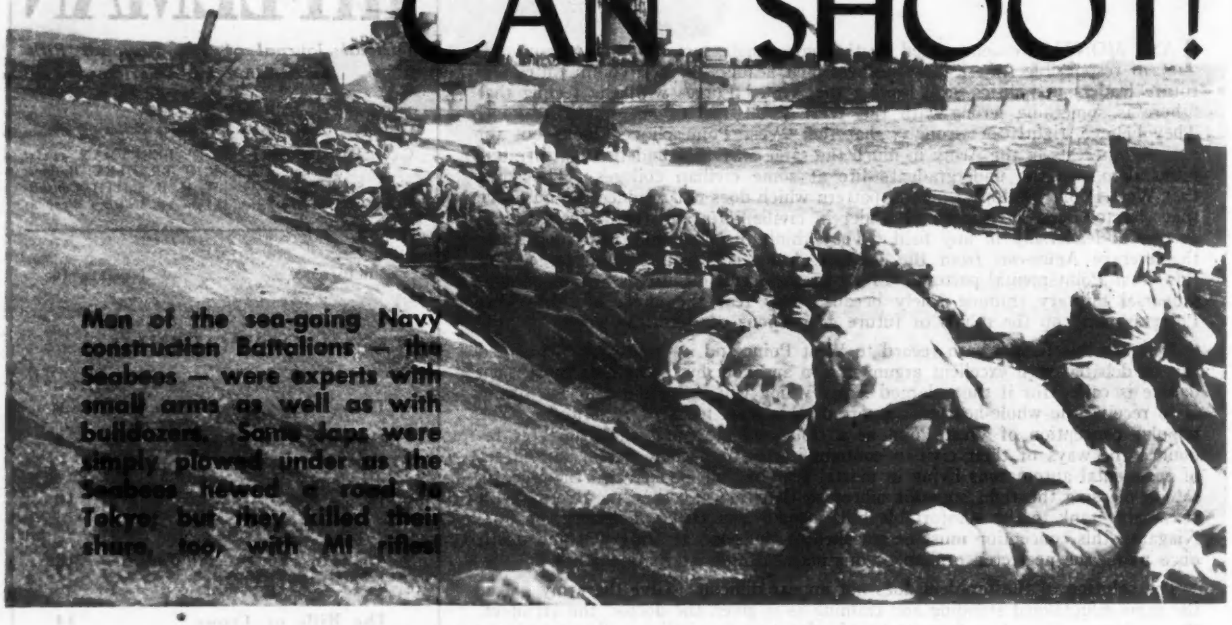
SEABEES CAN SHOOT!



Man of the sea-going Navy construction Battalions — the Seabees — were experts with small arms as well as with bulldozers. Some Japs were simply plowed under as the Seabees leveled a road to Tokyo, but they killed their share, too, with M1 rifles!

By LT. COMDR. WILLIAM J. THOMPSON

WHEN THE U. S. MARINES stormed ashore at Iwo Jima, the Seabees swarmed in with them, armed and ready to fight, if needed.

In the early days of the assault there was no opportunity for the Seabees to fight. They were too busy handling materials, supplying the men on the line, and doing whatever construction could be done under fire. For, although they hadn't time to shoot back, they were shot at. Mortar shells and small-arms fire rained incessantly on the beachhead area.

One tired and dirty-faced Seabee crouched in a shell crater when a mortar barrage let go. "If we could only fight back it wouldn't be so bad," he said. "It drives a man mad to wait and wait, never knowing where to expect the next shell."

As the fierce fighting left the beaches and Motoyama airfield was wrested from the Japs, the Seabees moved in behind the lines. Frequently they had to move their bulldozers and earth-moving equipment from the area because of enemy fire. No place was secure. They worked—and took it.

But they got their chances at the Japs after the battle lines were pushed back far from their construction projects, that is, as far as they could be on an island that was only five miles long and about half as wide. It was then that the Seabees showed they could shoot! Tactics reminiscent of Indian-fighting days were brought into use. The men went to work in the inevitable green uniform, wearing helmets and carrying carbines and other weapons. On every project "Up North," as the boys termed the central portion of the island, it was necessary to post sharpshooting guards. The survey crews kept an armed guard with the transitman and each rodman. The M1 carbine was a favorite weapon because of its portability, fire power, and effectiveness at the short ranges at which the enemy was encountered.

Bulldozers were busy pushing the rough terrain into usable areas. Suitable space was needed for air strips, for camps, and for roads. Sentinels were stationed at vantage points to protect the equipment operators, the oilers, and the other men in the work details.

The Japs that had not been killed when the Marines mopped up the last pockets of resistance, crawled into the maze of tunnels and caves that hollowed the central and northern portions of the island. From the caves they fought with fanatical fervor and with the finesse of an intelligent enemy. The terrain favored their passive defense. The need for water and food brought nocturnal forays that kept the camp guards busy.

One night, long after "D" Day, Seabees spotted a thin veil of steam coming out of a cave less than 100 yards from two battalion guard posts. A few minutes later, a trip flare was kicked off and there were the Japs. Instantly, a hail of Seabee fire was directed at the cave dwellers.

"I grabbed a tommy gun and started spraying the hillside," said Calvin E. Broady, Seaman First Class, of Berea, Ohio. "Those Nips began ducking behind rocks or anything else they could find."

Norman L. Baker, Carpenter's Mate Third Class, of Walled

Lake, Michigan, was in the guard post adjacent to Broady. "The first thing I knew was the flare going off and Broady yelling, 'There's one over there, and another one and another one—Christ, there must be a thousand of 'em. It sounded like 'D' Day all over again," added Baker. "My gun jammed and I was really scared. I didn't waste any time tradin' it. One Jap had almost reached the dugout when I got him."

"When the shooting started I joined in with an M1 (Garand)," said Russell J. Mellinger, Carpenter's Mate Third Class, of Indianapolis, Indiana. "After the flares burned out the Sergeant of the Guard came up behind the dugout and fired some parachute flares they call 'Bouncing Betties.' We saw a Nip try to hide in an oil barrel that had the head knocked out of it. Next morning we examined the barrel and it was a sieve. So was the Jap."

When daylight came, the Seabees discovered eleven Japs before their posts. Ten had fallen before the deadly fusillade and the eleventh had successfully escaped the scathing fire by hiding in a hole. Total count—ten killed, one prisoner, three escaped.

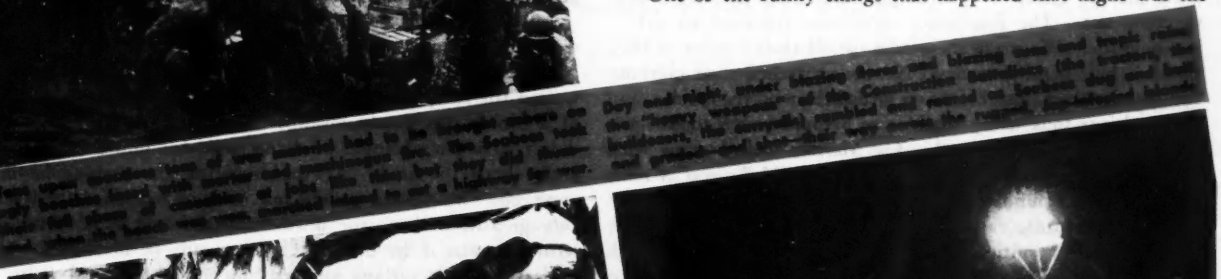
Apparently the Japs had not realized that, on opening the entrance to the cave, steam came seeping out of the hot ground. It gave them away before the flares were tripped. Some of the caves become unbearably hot from the underground temperatures when the entrance is closed. Upon opening a cave, or during rainy weather, they frequently emit steam. This time, nature was on the side of the Seabees.

"We had some interesting evenings at that post besides that night," said Robert S. Humphrey, Coxswain, of Lexington, Kentucky, "but it was usually one or two instead of a dozen. There were a few times I was glad I had learned to shoot bull's-eyes."

Marines were still patrolling a section where one of the construction battalions was busy building the battalion camp. Someone suggested that the battlewise Marines divide their nightly ambushes and guard posts with Seabee camp outposts. This was done. After three or four nights, in which combined efforts netted several dead Japs, the Seabees were on their own. The coaching and seasoning were excellent, for the Seabees soon performed like veterans. Getting a Jap was almost a nightly occurrence. The posts were manned on a volunteer basis and soon the battalion commander was besieged with requests to do guard duty at the new camp site.

"One night we put an ambush on top of a high rock near the battalion water point," Robert P. Hopkins, Carpenter's Mate Second Class, of Oakland, California, said. "There were three of us in the ambush and it was my turn on watch. I saw three Japs in the moonlight, creeping toward the rock. I pointed them out to my two companions and then fired a burst with a tommy gun. Two of the Japs were knocked down. The next morning we found we had killed two, the other one had escaped."

"One of the funny things that happened that night was the



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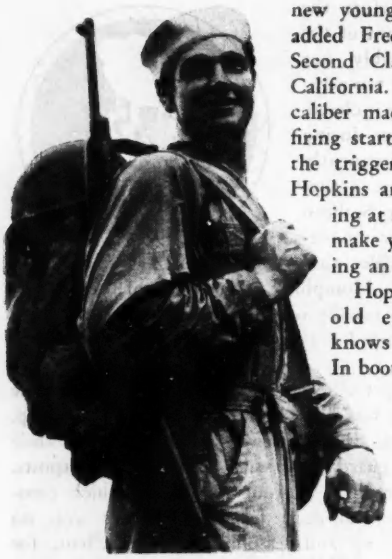


He's got things to grin about, and he's earned the right to strut. He's a Seabee!

new youngster we had with us," added Fred G. Fogg, Shipfitter Second Class, of Pacific Grove, California. "He manned the .30 caliber machine gun. When the firing started, he yanked back on the trigger and the next thing Hopkins and I knew he was firing at an elevation that would make you think we were having an air raid."

Hopkins is a thirty-year-old ex-Texan who really knows how to handle a gun. In boot camp he fired a heart-breaking 174 x 200 score for record with the M1 carbine—just one point short of the necessary score for the Navy's Expert Rifleman Medal. A year later, before shoving off for this operation, he tried for record again and ended up with 182 points to earn the coveted medal with a wide margin.

"We killed several Japs from our guard posts while building the camp," Hopkins added, "but the biggest thrill was capturing twelve prisoners. It was about half an hour after daylight. The Marines had secured their posts and left for chow. We were getting ready to return to our bivouac for breakfast when I saw a movement behind a rock. I fired a quick shot but didn't connect. A minute or so later a white flag was stuck up over the crest of the ridge. We flanked the ridge with another group of guards and asked for the flag waver to come out. The flag-bearer came out, followed by others in single file. We made them take off all their clothes so they couldn't hide hand grenades. Next we searched their clothing and then let them dress before we loaded them on the truck.

The driver took us by the Marine bivouac so we could show them what they had missed. The Marines looked at us with amazement. One of the veterans said, "Hell, you Seabees don't need us around any more!"

Surveying roads, camp boundaries, and pipe lines brought the most opportunities for contact with the enemy. Each rock, each gully or draw, each cave opening was a potential hiding place for a Jap.

One construction battalion camp is named in honor of a member of their survey crew killed while running the traverse for their camp site. Lieutenant (jg) Hiram H. "Fuzzy" Farnsworth, Civil Engineer Corps, U. S. Naval Reserve, of Las Cruces, New Mexico, was in charge of the party. On that particular day, Farnsworth demonstrated that his Expert score with the carbine and the two Sharpshooter qualifications with the Springfield and .45 caliber pistol were no fakes.

"We were running a traverse control that crossed deep ravines, which were full of brush and caves. All morning we had struggled through and over this type of terrain. We were on the alert and kept two men as lookouts on each side of the line. Also, we had one guard follow about fifteen yards behind the crew so that we would not be attacked from the rear," said Farnsworth, describing the area he was working.

"About three o'clock in the afternoon we were moving up to a new transit point when I heard an explosion behind me and to my left. I whirled, thinking that one of the men had stepped on a mine. Instead, one of the men had been hit by a hand grenade thrown from a slit trench in a draw. A Jap moved in the trench and I fired two shots into his head with my carbine. At the same time another started running down the draw. I knocked him down. At that moment two hand grenades were thrown toward me by three Japs farther down the ravine. I ducked from the grenades and emptied my clip through the brush at them. That ended the fight. When it was all over, I found that it lasted only about ten or fifteen seconds."

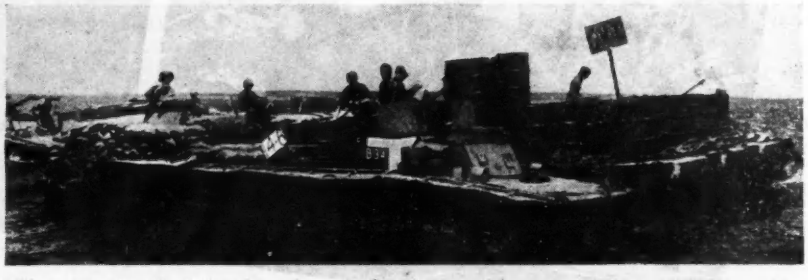
Edwin A. Mullin, Carpenter's Mate First Class, of New Castle, Wyoming, from another battalion, had a similar experience as chief of a survey party. Mullin isn't a gun nut but he has hunted coyotes, deer, and antelope on his father's ranch. When he went through boot camp, he qualified as a Sharpshooter with the carbine. He's the kind of fellow that's more interested in classical music than in shooting, but his ability to handle a carbine paid dividends on this particular day.

"The transitman had moved up to a point on a ridge and was getting the transit leveled. I was copying some notes," said Mullin. "One of the guards was scanning the countryside when he saw the officer in charge of the survey parties coming down the ridge. The guard turned and found the transitman standing motionless by the instrument."

"Get on the ball, the boss is coming," said the guard. "Let's look like we're at work." The transitman lost his paralysis and pointed toward some rocks about fifty feet away.

" 'There's a Jap down there!' he stammered. We hit the dirt and I began stalking those rocks like I was after an antelope. Pretty soon I had a good view of the spot and I waited for the Jap. A minute or so passed and I saw the top of a brown cap slowly raising above the top of a rock. He didn't have on a helmet. I didn't wait for him to expose his entire head. I fired. At the crack of the carbine he disappeared. We waited awhile and nothing happened, so I sent two guards to flank the draw. They found him. He was harmless even if he did clutch a grenade in his hand. The bullet from my carbine plugged him in the forehead right at the hair line."

There was one organized banzai (*Continued on page* 16)



"Fill 'er up, mister!" Rationed gas here, so that there need be no gas rationing out there, where Seabees manned the pumps of sea-going service stations to fuel landing craft outside the reefs

Why the Winchester Model 95 Was Discontinued

IN THE STORY, "The African Winchester," by H. V. Stent (RIFLEMAN, August, 1945), wonder was expressed as to why Winchester discontinued a model of which Mr. Stent and others were so fond. Here is the answer:

Editor:

There were several reasons for the discontinuance of the Model 95, the first and most important one being lack of sales. In the last years of its official existence we sold very few guns. As you know, in manufacturing an arm, as is done by the large gun companies, it is necessary to set up and run several thousand of the model at one time. In the early days, when Winchester had only a few models, we seldom considered setting up for less than a run of 10,000 guns. In more recent years, however, with the number of models greatly expanded, it has been necessary for us to make shorter runs. Even with these shorter runs, the Model 95 sold so slowly that it did not pay us to keep it in the line.

With the return of the troops from abroad, bringing back German 8 mm. cartridges, there was quite a wave of burst .30-'06 guns of various makes. The Model 95 was sharing in this experience. Due to this fact, the rumors went around that the gun was unsafe and it was withdrawn from the market because of it. The gun was entirely all right with any factory-loaded ammunition for which it was designed and every .30-'06 Model 95 had, of course, satisfactorily passed the Winchester high-pressure proof test before being permitted to leave the factory.

The gun had two particular features which were often commented on unfavorably. First, the box magazine came at the balance of the gun and made it awkward to carry. Secondly, the gun had to be loaded in the open-bolt position, requiring two distinct motions before loading, which necessitated the shooter taking his eye off the game, and the operation was difficult to perform with mittens or on horseback.

On the other hand, there is no question but that the lever-action gun is a very much faster and easier operating mechanism than the bolt action and hundreds who have had the actual experience soon realize this. The Model 95 was the only lever action we had that was long enough to take the .30-'06 cartridge and, of course, in the final analysis it is the cartridge in the combination that determines the efficiency of the gun, other things being reasonably equal.

You are correct in saying that our revamping of the Model 86 into the Model 71 has been very popular and we have sold a large number of them. Unfortunately, the mechanism is not long enough to take a .30-'06 cartridge and also it is equipped with a tubular magazine, making it difficult to handle pointed cartridges.

Edwin Pugsley
WINCHESTER REPEATING ARMS COMPANY.

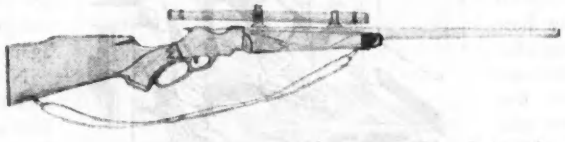
THE COVER

Daybreak . . . over placid waters where sleepy ducks float; the zero hour of a hunter's day. . . . A fine kodachrome study from the camera of Josef Muench, of Santa Barbara, California.

THE MOSSBERG MARTINI

PERHAPS one of the most unusual rifles recently produced in this country was a little .22 caliber single shot made by O. F. Mossberg & Sons, and designated as Model L. Its main point of interest was its action which was a drop-block Martini! It was fitted with a loop lever which had a travel arc of only two inches to operate the action. The cycle of operation was short and sweet. When the lever was swung down, the breechblock swung downward on its rear pivot and a two-speed ejector automatically extracted and ejected the empty cartridge case. On the upstroke, the action was closed and the exposed hammer was placed at the half-cocked safety position.

This odd little rifle was manufactured about twelve years ago, was never very popular, and was soon withdrawn from the market. It did have certain disadvantages. One of these was its takedown feature. I can see no reason for having a takedown in a .22 caliber rifle. Accuracy is bound to suffer, and since solid breeching is a prime requisite it can readily be seen that the takedown feature is undesirable. At the time that the Mossberg Model L appeared, the Company was making a strong bid in the low-priced field with a good series of low-priced but sturdy .22 bolt-action rifles and .410 bore shotguns. The great popularity of the bolt-action rifles seemed to force the smooth little lever action into the background. I have always felt that the Mossberg Martini had some good possibilities. In his book, "The Rifle in America," Philip B. Sharpe speaks favorably of the Model L. I believe that it would make a very fine rifle for junior marksmanship training.

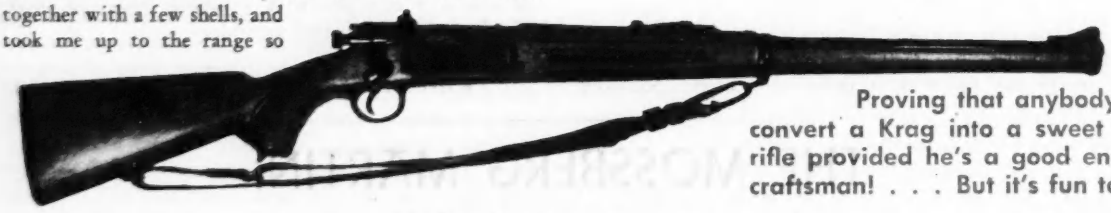


Below: The Mossberg Martini "as is," and *(right)* as the author dreams it.

To sum it all up, I believe that this action, with a *solid-frame* construction and an improved buttstock, would still be a fine target and small-game combination. It should be fitted with a heavier twenty-six-inch barrel, in .22 Long Rifle and .25 Stevens caliber, with a weight of about seven or seven and a half pounds. The choice of caliber would suit it for both target work and small-game hunting. Such a rifle might find a much better reception than the original, which weighed only four and three-quarter pounds and sold for less than ten dollars.

—*H. O. Dean.*

TYRO'S



Proving that anybody can convert a Krag into a sweet deer rifle provided he's a good enough craftsman! . . . But it's fun to try!

ON THAT MORNING in the fall of 1942, when I rode into town with Lem, I had no premonitions. Conscious of no lack in a wholly satisfying complement of hobbies, I entertained no doubts but that my leisure time would continue to be full, as for many years it had been full, of an absorbing and endless variety of pursuits revolving around the central theme of designing, building, and sailing boats. Except on rare occasions, I had not shot or handled a gun for twenty-five years, and I should only have smiled had anyone suggested that I was going to take up guns or amateur gunsmithing.

Lem's conversation turned to deer hunting; a subject far from any interest of mine, or so I thought. Indeed, I do not believe that even Lem had then conceived that subtle, not to say Machiavellian, plan of shepherding another candidate into the shooter's fold which he so delicately and adroitly (and so successfully) effected. But fate, or some latent spark of inheritance from Kentucky rifleman ancestors, was also at work; and as Lem spoke I began to see dim but intriguing visions. I asked Lem about this deer hunting business—where he hunted, whether deer were plentiful, how difficult it was to get a shot, whether he had ever bagged one, and finally, in quickening interest, whether he would like to take me along next time. He said he would.

Although the idea of a deer hunt was appealing, it did not then occur to me that I should ever come to find significance in rifles, as such. It was only that to shoot a deer I needed a gun. It seemed perfectly natural to me, at the time, simply to borrow some rifle—any rifle of a suitable caliber—to do the job. In that frame of mind I acquired the use of a lever-action .303, together with a few shells, and Lem took me up to the range so that I might find out what it was like to shoot a big bore and whether I could hit the broadside of a barn.

With an entirely inconclusive answer to the latter of those questions, we went up to Lem's place in Vermont. I got up before dawn. I was in the woods by daylight. I climbed the mountains. I pushed through the brush. I hunted. I saw deer tracks. I even saw deer. But I saw no horns and so I did not shoot the .303.

But the trip was a lot of fun and it left me determined to have another try. This time, Lem let me take his scope-sighted .30-'06 Sporter. I still don't know how he came to trust me with that beautiful rifle. Certainly, I would never let any beginner take out one of my boats. But he did, and again I started early and stayed late. The snow was more than knee deep that November and the going was pretty tough on a swivel-chair hunter from the city. With pounding heart and a mist before my eyes, I just managed to keep on plodding up those mountains and through those choppings. Again, I saw innumerable tracks. Again, I saw deer; not one, but several. And, again, I saw no horns. But I did form two resolutions. I was going to get a deer. And, I was going to do it with a rifle of my own.

I talked and talked with Lem, trying, with the help of his advice, to decide just what sort of a weapon I wanted. I may be unique in this, but I shall be eternally grateful for the fact that in the winter of 1943-44 you couldn't just step into a store and buy whatever you wanted in the way of a rifle. If it had been possible, I should probably have done just that—and thereby missed some of the most interesting hours I have ever spent. With things as they were, however, it was natural to turn to some sort of a conversion which would not only provide a rifle made to order but which would also furnish some enthralling fun in my shop. As the subject of my first attempt, I decided on a Krag. It would make an ideal deer rifle if I could succeed in doing a real job, but I should not be out too much if I failed.

Accordingly, the season being appropriate, I petitioned Santa Claus; and he with an assist from Lem and Dan (even Krags weren't hanging on every bush) came through. On Christmas, 1943, I thus acquired a service Krag, "inside excellent, outside fair." It wasn't really very prepossessing to look at, but as I sat at home evening after evening, examining and handling that Krag and sighting at imaginary targets, I began to visualize what I wanted to do with it. I read and I studied. I looked at pictures. And always I held long discussions with Lem.

The bluing job was the least fun and about the most troublesome operation of them all. It spoiled a whole afternoon and part of the kitchen linoleum; but, finally, the color came.

First, the general outline. I had never seen a sporting rifle with a Mannlicher stock, but Lem convinced me that I couldn't go wrong that way. I could always amputate the fore-end if I wanted to, whereas if I cut it off first I could not put it back. So that was decided and, again, I am grateful.

Next, how much to cut off of that awkward thirty-inch barrel. After a good deal of communion with my soul, with Lem, and with a few gunsmithing books, I decided to leave twenty-three inches. I also decided that I wanted a ramp front sight, a Lyman 34 rear, a pistol grip, and a little checkering.

S RIFLE

By TRUMAN HENSON

So, I got out my hack saw, a countersink, some marbles, and some emery cloth of varying degrees of coarseness and, with my heart in my mouth, went to work as Baker describes it. Cutting down the barrel did not turn out to be so much of a job after all. When a nice crown appeared on the muzzle, I was encouraged.

The ramp was indicated as the next step. I took a piece of inch-and-a-quarter cold-rolled steel about two and a half inches long and chucked it in the lathe off center, so that a hole the size of the barrel would leave about an eighth of an inch of stock on one side and a half inch, more or less, on the other, and bored it out from end to end to make a drive fit on the barrel. It seemed to me that, so far as the outside of my combined ramp and barrel band was concerned, I could get it near enough with a hack saw and a file, for that didn't really call for exactness. I did want the slot for the sight blade to be parallel to the barrel hole, so I ground a lathe tool to a cutting-off shape a sixteenth of an inch wide and put it in the toolholder sideways. Then, with the piece still in the chuck, and after drilling a one-sixteenth-inch hole in the work to locate the rear of the slot and provide an end for it, I took light cuts with my improvised shaper tool by moving the saddle sideways with the handwheel until I had a slot a sixteenth of an inch wide, a quarter of an inch deep, and half an inch long.

(I have built a good many boats and a boat builder is complacent in the theory that the members of his fraternity can do about anything, being of necessity combinations of artist, architect, engineer, carpenter, cabinetmaker, smith, painter, rigger, and assorted other kinds of master workmen. But before I finally got that ramp chewed out of that chunk of steel, I was ready to admit that there is something to gunsmithing, too!

Leaving the ramp about a quarter of an inch thick, I cut away all but that and about five-eighths inch of the front of the band, letting the back of the band merge into the bottom of the ramp in a fair curve so as to make a good, wide saddle to fit the top of the barrel. Then, starting just back of the slot for the sight blade, I cut a nice concave curve for the top of the ramp, and matted the top by grooving it with a pointed tool in the lathe. I left the band about a thirty-second of an inch thick, except for a lug about a quarter of an inch wide and an eighth of an inch thick on the bottom; and I drilled and topped two holes in that lug, one for a setscrew and the other for a screw to hold the fore-end of the stock. I then drove the band on the barrel, squaring it with the flat top of the military rear sight base, and turned in a hardened, hollow-head setscrew good and tight.

I next annealed an old plane iron a sixteenth of an inch thick and cut out a little rectangular piece of it for a tool-steel front sight blade. From the rear upper corner of this blank, I filed out a little square notch and connected it by a short slot to a hole drilled just ahead and below so that the notch, the slot, and the hole were shaped like a dumbbell with one square end. Then, I bought fifty cents worth of gold and hammered it into my dumbbell-shaped hole, making a square gold bead on the front sight blade. The expansion of the gold, under the hammer, in the double hole and slot held it firmly in place.

The Lyman 34 was then put on, using a handy grinder to get through the case on the hardened receiver, for the screw holes. Again, I squared up with the base of the military rear sight before I drilled and tapped the holes for the attaching screws. I also removed the staff of the military rear sight, and made and fitted a folding leaf for an auxiliary rear sight.

Off and on, all this time, I had been working on the stock. It was really pretty bad to start with. It was decorated with deep dents and a thick coat of old oil and dirt. I scraped it all down with a cabinet scraper and raised the dents back to the original level of the wood by steaming with wet wrapping paper and a hot soldering copper. Then, I cut out a block of walnut for the pistol grip, cutting a square groove in it at the place it was to join the stock and a corresponding tongue in the stock, so that I had plenty of gluing surface. A little waterproof cold-water glue and some clamps, and the grip blank was solidly and permanently fastened to the small of the stock. Then, a chisel, a gouge, a file, a scraper, and some sandpaper—and I had a pistol grip.

With all that behind me, it was not much of a trick to make up a couple of checkering tools and checker the pistol grip and fore-end. I also did a little working down of the stock, mostly around the grip. Finer and finer sandpaper, ending with three treatments of Number Six-O, after raising the grain with a damp rag, left the stock smooth. A combination of linseed oil and elbow grease did the rest.

For a fore-end tip, I got a nice block of Bakelite. I cut a tenon to fit in the groove already in the walnut, where I had sawed it off, and cemented the Bakelite to the wood. Also, for good measure, I ran a little wood screw down through the tenon into the stock. I got hold of a piece of black buffalo horn, from which I made a pistol grip cap, leaving a seven-eighths-inch hole in the center for a screw cap or plug, also made of horn, over a hole bored a couple of inches into the pistol grip. This formed a handy place to hold my front sight cover and the tip of the jointed brass cleaning rod, which I made to fit in the holes already in the butt of the stock, under the trap, for just that purpose.

The trap also covered a somewhat larger hole which contained a small cylindrical oilcan. I made a new cover for the can, into which I could screw the cleaning rod, so that the can would act as a handle for the rod as well as a reservoir for a little oil. That rod and oilcan and the few patches I kept in the butt and the pistol grip, to stop any tendency to rattle, proved to be pretty handy to have with the gun in the woods. It was convenient when I slipped and got the muzzle packed full of snow, for instance.

One thing that my reading did was to make me head-space conscious. I tried to measure with shims over cartridges, but I could not be sure of my results because I could not mike the cartridge heads. There was, however, enough looseness in the bolt to worry me. And the horrible examples of the results of excessive head space about which I had been reading had me thoroughly scared. But a head space gauge for a gun chambered for a rimmed cartridge is not very complicated, so I turned up a steel button .064 inch thick for a "Go" gauge and another .067 inch thick for a "No Go" gauge and tried them in the gun. Alas, my bolt would close on either. I began to haunt the shops and finally found a place which had some stripped Krag bolts. One of these showed no signs of heating or other monkey business, and would close in my rifle on the "Go" gauge but positively would not close on the "No Go" gauge. I traded my old bolt and a dollar bill for that one: and, after that, was able to breathe more freely.

After a little stoning to smooth the trigger pull, blueing was next. It required a lot of work with emery and crocus cloth, and also necessitated making a sheet-steel tank to fit over four burners on the kitchen range. The blueing job was the least fun and the nearest thing to work of any of the operations. It spoiled a whole afternoon and a part of the kitchen linoleum; but, miraculously, the color finally appeared. And when the blueing was done, so was the rifle.

Perhaps it was only that I had become used to the gun from handling it so much, but I like to think that I had really achieved a nice fit and balance. Anyway, I found that I could point the piece as naturally as my index finger. Nothing was left but to go, in fear and trembling, up to the range to see whether the rifle would shoot where it looked.

TRAPSHOOTING CHAMPIONS

Press Association, Inc.

Mrs. Lela Hall, of East Lynne, Missouri, and Mr. E. T. Pugh, of Morris, Illinois, winners respectively of the women's and men's 1945 North American Clay Target Championships. In the Grand American, annual trap classic, held at Vandalia, Ohio, home of the Amateur Trapshooting Association.

Satisfaction is a mild word for my state of mind when I found that the groups were just as tight as could be wished. The balance was right, the sights were right; and, after my elation had simmered down, I was ripe to go up to Lem's ready to hunt.

Once more there was snow on the ground. Once more, this time on opening day, we tumbled out and ate our breakfasts in the dark. Once more, we were in the woods by daylight. Tip took the left, Lem the center, I the right. Once more I went up the mountain, walking a little, as quietly as I could, then waiting a little, but always looking, looking for those things a city man finds it so hard to see.

I came to the upper edge of a chopping spread out down the side of the mountain before me. In the woods at the edge I waited on a log. It seemed a good place to see without being seen, and I had been conscientiously hunting upwind. I had stayed about long enough, I thought, and was getting ready to move on, when, from behind a rock and a couple of little spruces, about fifty yards away, stepped a deer!

Were those really horns? Was this actually happening to me? Up came the Krag. Two shots, so fast, in my excitement, that Lem who heard them didn't think they could be mine, but must be someone with an automatic rifle. But my buck fever had not only speeded up my shooting, it had also caused me to forget all about such unimportant little things as sights. I shot right over that buck's back, both times.

The deer, however, appeared to have a little buck fever, too. He couldn't seem to tell where the shots were coming from, and he didn't know what way to run. Besides, he was, I think, conscious of a pair of other hunters who, disdainful of the wind, were in the woods a third of a mile away, approaching the other side of the chopping.

While the buck danced, trying to decide which way to go, I had time to remember that I had laboriously put some sights on that Krag. It occurred to me that it might be logical to use them. For an instant, the deer turned toward me, looking back over his shoulder. I put the gold bead of that frontsight on his neck, centered it carefully in the aperture, held my breath—and touched her off.

He was dead before he hit the ground. He did not fall; he was knocked down by 220 grains of bullet traveling with a muzzle energy of more than 2,300 foot-pounds. As if struck by an enormous maul in the hands of a giant, he somersaulted off his feet, turned in mid-air and landed on his back. One hind foot jerked spasmodically, and then was still. I had my buck. And no mere spike-horn, either, but a nice six-pointer; my first deer, but not my last!

That is the story of one tyro, one Krag, one buck, and a lot of fun. And the moral of the tale lies in the fact that, despite the high excitement of the hunt (and the point-free meat the buck provided), I don't know to this day whether the shooting or the gunsmithing was the more fun. Both sports rate top ranking for sure-fire enjoyment. ● ● ●

Air Guns For Aerial Targets

By LT. COL. LEWIS RAEMON

LIKE MANY OTHERS of the shooting fraternity, I had always regarded air rifles as juvenile, and had never considered air pistols as having any practical value at all. It was my daughter who led me to a change of mind. Reared in a home in which rifles and pistols were used and loved, she was interested enough in guns but could never be interested in the military match style, Dewar small-bore shooting, and the formal pistol matches popular among my friends.

But then we moved to an army post where one of the popular Sunday morning activities was skeet shooting. Maybe it was the thrilling action of the flying clay birds, or perhaps it was the envied popularity of those damsels who were among the tops on the scoreboard, but *something* clicked and a period of training of a new variety got under way for us both.

The suggestion to use air guns for training was made by an army officer who was later to become multi-starred with rank, and famous for his guns. I was skeptical, but willing to try. And so, shortly thereafter, the first air gun was bought. The "Red Rider," "Buzz Barton," and other juvenile models were passed by after receiving only a fleeting glance. I was looking for something with an action and trigger squeeze that bore at least some resemblance to those honored pieces in my gun cabinet.

The first specimen I saw with acceptable characteristics was a Benjamin Air Rifle, Model 310; a smooth-bore model, calibered for round BB shot. The literature accompanying the rifle stated that it would group within a two-inch circle up to twenty yards. Though I had wanted one of the rifled .22 caliber models, said to be capable of grouping within a one-inch circle at the same range, none was in the stock of the dealer, and I was too impatient to wait to receive one from the factory. And, as it turned out, for the purpose to which I was to put the rifle, the BB caliber proved very satisfactory.

To test the BB for accuracy, I settled into the steady sitting position, and had no difficulty in getting many groups which were easily well inside the two-inch circle. By careful selection of shot of uniform size, some of the groups were actually closer to one inch in size than the promised two.

The sights were well designed, and for an additional dollar I secured an adjustable peep sight from the factory. The stock was plainly the least satisfactory part of the rifle. It was small, with a low comb. I increased the proportions and raised the comb by fitting and gluing on a matching piece of walnut, so that with my cheek nestled on the stock the sights fell naturally into alignment. This was important for I was planning to use the rifle on moving targets and speed in getting the correct sight picture was essential. I did not consider the rifle suitable for prone target shooting (for one thing, it would have been difficult to adapt it for use with the loop sling), so my modifications were designed to perfect it for use in the standing position.

Then began the training period. I had always marveled at the shooting performances of the Toepperweins, Captain Hicks, and Tom Mix. I recalled seeing Captain Hicks, in a demonstration using a .22 caliber rifle, hit a lump of coal in the air—then, with a quick second shot, splatter one of the fragments which flew from the original piece. These feats interested me, but I had never been able to find a location which permitted me to practice aerial shooting safely with standard .22 caliber guns. In rather thickly settled communities, I never felt safe in firing in the air, not knowing where the bullet would land. But, with the air rifle, this was practically no problem at all. The little BB pellet was pooped out at 100 yards range, and the larger calibers (.177 and .22) were likewise well spent at about that range. And so, now that we were able to practice without endangering or disturbing the neighbors, we indulged in a great deal of aerial shooting. The development of skill was a natural result of this practice.

Following the BB Benjamin air rifle, I next secured a BB Benjamin air pistol, and found it equally satisfactory. It has a balance that reminds me of my Woodsman. The trigger squeeze is clean and crisp, and the sights can be adjusted easily and quite accurately.

With continued practice we became rather adept at hitting aerial targets with either the BB air rifle or the pistol. The target was usually a tin can. We started with the No. 10 size cans, and shortly graduated to those of smaller dimensions. We also took up more difficult angles, quartering shots, cross throws, and surprise throws, and managed to maintain a fairly good average of hits. We both developed a skill which we had previously considered impossible, and which provided amusement for ourselves and entertainment for our friends.

Our repertoire also included quick fire, and other tricks, many of which proved of considerable value to me in the combat type of shooting on the training ranges, and later in village fighting and similar serious military business overseas.

I learned that air guns fall into two classes: (1) Those into which air is pumped into a cylinder and therein stored, as air is kept stored in the tube of an automobile tire. Action of the trigger opens a valve, and the compressed air expelled behind the projectile provides the propelling force. The Benjamin air rifles and pistols all operate on this principle, as does the Crossman rifle. (2) The second class operate on the principle of a piston. As the piece is cocked, a heavy spring is compressed. The action of the trigger permits the piston to move forward under the impetus of the spring, and the air ahead of the piston is forced through a vent and con- *(Continued on page 18)*

BRONZE STAR TO SWANSON

Lieutenant Colonel Emmett O. Swanson, USMCR, has been awarded the Bronze Star Medal for heroic service during the invasion of Iwo Jima. Swanson, one of the most popular all-around shots in America, went ashore at Iwo Jima as Ordnance Officer of the 5th Marine Division. The advance had pushed well toward the northern end of the island when a single Jap gun near the northern tip planted a shell in the 5th Division's ammunition dump. Swanson immediately organized and led the fire control efforts which resulted in confining the damage to a relatively limited area.

While serving at the Marine Base, Quantico, Swanson, then a Major, received a letter of commendation from the Commanding General for a somewhat similar activity "directing the clearing of an ammunition dump" which had accidentally exploded.

The RIFLE on CROWS

By BERT POPOWSKI

Wary and hard to hit, crows make nearly ideal targets for riflemen. They tax the shooter's ingenuity and skill—and there's no bag limit!

MANY years ago it was my good fortune to fall in with an expert rifleman; a chap who practiced more than he preached and who, when his guns failed to produce killing hits on flesh-and-blood targets, knew what to do about it. We collaborated in firing hundreds of rounds of carefully hand-loaded ammunition in various calibers, and many of those were "in the black" (literally) on the top varmint target of them all—the common crow.

We were equally interested in the performance of various bullets on selected varmint targets, as well as in their accuracy. Secondly, we shot prairie dogs, gophers, jack rabbits, as well as crows; but, of them all, the crow was by far our favorite target. Not because we killed any great number of the black rascals, but because they furnished us an unsurpassed target and because of the satisfaction we got in sending each of these black nest-robbers to its final reward.

Jack rabbits were our top long-range targets, for they provided us with an opportunity to check the amount of wind drift affecting various loads, and often permitted a second, sometimes even a third, corrected shot. Prairie dogs and gophers were somewhat less suitable targets for two reasons. Generally they moved around so much as to interfere with a perfect check on the shooter's and rifle's finest possibilities; and, second, they were so small that they had to be taken at relatively short ranges, before windage became a telling factor.

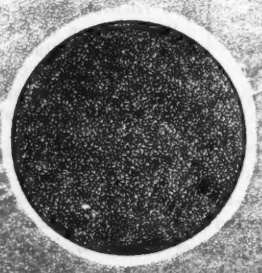
Crows, on the other hand, give just that element of uncertainty that makes them the rifleman's dream targets. Not only did they give us shots at all ranges, usually long, but they were no easy marks—even after wind drift had been definitely established for that particular range and at that particular angle to the bullet's flight. For, when a crow is stripped of its padding of feathers, you haven't more than a two-and-a-half-inch circle into which you must plant your killing bullet.

Compare that with the official bull's eye at 100 to 200 yards and you will readily see that hitting crows calls for a brand of accuracy that is difficult to achieve even on paper targets that hold still. The official bull for scope sights at 100 and 200 yards is four and eight inches, respectively. For iron sights it is six and eight inches at the same distance. Most factory-made high-power rifles must be doctored a bit to make them group closely enough to kill crows consistently at these ranges. (AMERICAN RIFLEMAN September, 1941.)

The fine accuracy demanded on crow targets required that all of our shooting be done from as solid a foundation as possible. We had half a dozen well-camouflaged setups into which we could slip with a couple of rifles, a pair of binoculars, and a double handful of loads, and then chuckle with ghoulish glee when one of our carefully held shots produced that satisfying "whock" that told its own story.

Shooting over the South Dakota plains, where we had constant winds of varying velocity, we rarely squeezed off without having to make compensation for air currents. This windage problem gave us wonderful opportunities to test the performance of various calibers and we speedily learned that some of the ultravelocity slugs bent like fishhooks when the range was beyond 200 yards. We soon evolved a formula which we applied to all windage shooting problems (AMERICAN RIFLEMAN December, 1938) and then our windage worries were over—or so we thought.

Spring and fall crow migrations, chiefly the former, gave us the bulk of our shooting. Not only were we able to work on a constantly changing, and less wary, crow personnel, but the scant vegetation of the spring months left the black birds out in the open where the entire target was exposed. Much of our shooting was done by the gunner slipping out of the car and into a ditch, while the driver rolled the car on for some distance before stopping to focus his binoculars on the performance. But this was a time-wasting procedure. We soon evolved a picnic-bench type of shooting rest which folded up for easy transportation. This we set up in the shelter of a grove, baiting our set with a couple of dead jack rabbits or a half-dozen gopher or prairie dog carcasses set out from 100 yards on out, according to the specific locale in which we shot. When we were through shooting, we gathered up the shattered crow carcasses and disposed of them some distance from the site; but we left the bait where it was, to teach the birds that this area was a likely spot for free dinners.



Our shooting stand was always set as rigidly as possible, and, since our targets were placed in a relatively small area, it seldom required much movement on the part of the shooter to get his shot away. The rest on which the forearm was placed was padded with a combination felt-and-rubber cushion. This

This is the spot you must hit to make sure crow kills. It's approximately a 2½ inch target.

prevented marring the forearm of the piece and provided a nearly slipproof support for the rifle. The rest provides also a rear support for the shooter's right upper arm so that natural muscular tremble and heart-beat deflection is greatly reduced. When you're shooting at a two-and-a-half-inch spot at 200 yards, you must be able to set the cross hairs firmly and unmovingly on that tiny mark.

My favorite rifle for this shooting was, and still is, a Model 54 Winchester in .250-3000 caliber. This rifle is fitted with a Marksman stock, in which is bedded a twenty-four-inch round barrel, tapered from one-and-three-sixteenths inches at the breach to three-fourths-of-an-inch diameter at the muzzle. It has a fourteen-inch rifling twist and is perfectly capable of making inch groups at 100 yards with the most accurate loads we uncovered.

While we used several scopes atop this fine barrel, the best one for crows was a Fecker, six-power, with half-minute clicks and No. 2 cross hairs. The whole outfit weighs just over eleven pounds and is short enough for quick and easy handling. This is important when you're holding on a nervous crow and must get the shot away in a minimum of time.

The rule we generally followed was "shoot until you miss." The shooter then yielded the rifle and took on the spotter's job. My records show that a run of seven successive hits was tops, but this was in a ridge-sheltered area where bullet drift was slight, and the shooting was done at a range of 175 paces. However, this same spot yielded a kill made at 345 paces on a wily old crow that had previously been missed at our decoy setup and had stopped atop a fence post for a final fatal survey.

All of our shooting setups were so made that we could clearly survey the area beyond the point of the bullet impact, enabling us to see to it that no ricocheting slug would endanger man or beast. Safety was further served by the use of soft-nose, protected-point, or expanding bullets, which tumbled out of line as misshapen metal, once they'd made contact with crows or the earth. At no time did we shoot at crows perched at such an elevation that the spent slug might drop over the horizon and into farmyard or field. This is a common, and sometimes fatal, mistake made by riflemen in shooting at chance targets—birds perched in trees, on fence posts, or atop a ridge. The danger increases in direct proportion to the density of population.

Crows hate owls, will come from miles around to scold them. Not many crow lures are better than "Old Who-ey," alive or stuffed.

For the Model 54 .250-3000 we experimented with several .25 caliber bullets but finally settled on the 100-grain slug as the one which gave us the finest accuracy and the deadliest performance. We used two types: the Peters Silvertip, and the W.R.A. soft point, the latter often hollow-pointed with a three-sixteenths-inch drill. So treated, it becomes a murderous slug that will blow small flesh-and-blood targets to shreds.

With these bullets we used both 4064 and DuPont 4320 powders. We found little to choose between them in accuracy. We used from thirty-six and one-half to thirty-eight and one-half grains, finally settling on the former load as the one giving the finest accuracy. The lighter charge also gave a saving in powder and a reduction in bore erosion.

Most riflemen do not fully appreciate how accurate a combination of rifle, ammunition, shooter, and scope is necessary in order to kill crows consistently. With a two-and-a-half-inch target into which you must slip your killing shot, if your hold is off as much as one and one-fourth inches you may pluck a few feathers or smash a wing bone, but your bullet won't land with that explosive "Whock" that is the announcement of a very dead crow.

In fact, considering the human element, we found that the only consistent crow-getters were those guns that could consistently put five-shot groups within one minute of angle at all ranges up to 300 yards. Others were in-and-outers, clipping off hits in championship style one day, missing with disgusting regularity the next. The Model 54 did produce several inch-and-three-quarter groups at 300 yards in test shooting, and

Three youngsters out on a limb—which, in the opinion of crow-nemesis Bert Popowski, is where all crows should be!

that's accuracy in any man's language. At 200 yards we didn't indicate any especial surprise when we got inch-and-three-quarter groups, and those should kill every crow shot at, if elevation, windage, and hold were right.

In a fifteen-mile wind the bullet drift of the 100-grain bullet, ahead of thirty-six and one-half grains of 4064 powder, was one-and-a-half inches at 100 yards, four inches at 200, and nine inches at 300 yards. At twenty miles an hour, the wind drifted this same bullet two-and-a-half inches at 100, six inches at 200, and thirteen inches at 300 yards. When the wind blew at or over twenty-five miles an hour we packed up and went home, for our experience told us that it carried pockets of different pressure which raised hob with accuracy.

Another .25 caliber rifle with which we did considerable shooting was the .257 Remington-Roberts. This gun was a Remington 30-S Action fitted with a twenty-eight-inch Sukalle barrel, the whole weighing nearly thirteen pounds. While this weight made it a very nice rifle to shoot, the

excessive length was unwieldy and gave no better results than the Model 54 .250-3000.

This rifle used the 100-grain bullets with finest accuracy, a point we established by shooting away several hundred of the 87- and 117-grain .25 caliber bullets. The drift of the 100-grain bullet was not appreciably different from the Model 54 load, though the .257 cartridges were loaded to start at a considerably higher muzzle velocity.

In figuring wind drift, a formula is almost indispensable in estimating this enemy of rifle accuracy. First of all, it is necessary to take into consideration the angle at which the bullet coincides with wind flow. For instance: suppose you're shooting on the face of an immense clock, locating yourself at six o'clock and shooting at your target at twelve o'clock.

Any wind that will affect your bullet that blows between 7:30 and 10:30 on one side, and between 1:30 and 4:30 on the other, will drive the bullet out of line the same amount, though in opposite directions, of course. Likewise, the amount of resulting deflection that a wind of equal velocity will produce in that segment of the circle between 12:30 and 1:30, and 4:30 to 5:30 will be identical to, though in the opposite direction from, that resulting when the wind blows between 10:30 to 11:30, and 6:30 to 7:30; *but it will be only half as great* as the deflection mentioned in the first sentence of this paragraph.

What about the drift resulting from a head-on or tail wind? That will produce groups of almost double the size of those resulting when the wind is definitely on one side or the other. Such a wind pushes the bullet one way on one shot and in the opposite direction on the next shot. It is better to get the wind definitely on one side or the other to get consistent X's, whether your "black" is on paper or on a crow.

In practical shooting, it is best to have the wind blowing as near to right angles to your bullet path as possible, since your adjustment to compensate for drift is then much more uniform. In this segment of the circle, the formula for figuring wind drift is: muzzle velocity, less the residual velocity of the bullet at 100 yards, divided by a mean factor of 100. This gives you the drift in inches at 200 yards. Since most of your crow shooting will be at that range, it is only a matter of experience to set down or up from that figure for shorter or longer ranges.

No one in the United States is more interested than I am in encouraging the killing of as many crows as possible, whether their demise is accomplished by rifle bullets or by a hatful of shotgun pellets. But, unless your pet crow rifle groups exceedingly well, it won't kill crows with any degree of regularity. If it doesn't group tightly enough, or if its zero shifts from day to day, or if you aren't careful in protecting the scope setting once you've got it where it should be, you won't kill crows regularly regardless of how fine a piece of burl walnut you have in the gun's woodwork. Small groups come first. Then come those twins of good marksmanship: good holding, and the ability to estimate range and wind drift and to set your scope to compensate for them. Holding off for either range or windage, or both, is slovenly shooting and won't produce the results that may be achieved by setting your scope for them so you can center the cross hairs right where you want the bullet to land. ♦ ♦ ♦

"Seabees Can Shoot!"

(*Continued from page* 8)

attack after Iwo was secured. The path of the attack stopped at the edge of camp where a battalion, which had just reached the island, was bivouacked. For two or three hours it was a real initiation for the newcomers.

"It was hardly daylight when the charge started," said Richard C. Webster, Carpenter's Mate Second Class, of Crewe, Virginia. "I was on watch and, the first thing I knew, there was shooting all around me. It was being done by some Marines waiting to go aboard ship, and by some Army groups. I did a lot of shooting, too. When it was all over, there were ten dead Japs in one shell hole not far from my post."

Seabees are more noted for their building than for their shooting, but they do some of both. One enterprising 'Bee mounted a light machine gun in the body of a dump truck. He jockeyed the truck around where he had a good view of the area for frontal fire. For two or three nights he found enough targets to keep his interest but, as the Japs thinned out, he let boys in their dugout guard posts take over. Perhaps the Japs became suspicious of the vehicle.

On Iwo Jima, the Seabees did more than build bases en route to Tokyo. They demonstrated they could protect themselves, or fight if needed, as well as construct airfields. And they used all of the various types of small arms a construction battalion carries. The total Japs killed and captured makes a fancy figure for a service troop organization. Especially one that did not go looking for the enemy.

"I'm not shooting up to par, Lieutenant. I think maybe it'd be a good idea to send me back home for a refresher course."

They are a versatile organization. They are sharpshooters with carbines, Thompson submachine guns, and machine guns, as well as experts with their famous bulldozers. On Iwo Jima they proved that "Seabees Can Shoot!" as well as build. ♦ ♦ ♦

Loading the Charcoal Burners in the Field

By V. M. STARR

SINCE SO MANY OF THE BOYS have become interested in the old muzzle guns of grandpop's day and have put so many of them to practical use in the field, maybe a few hints on practical field loading methods are in order.

Since early boyhood I have loved and used these old front feeders and find that they give me a thrill that I just don't get while using modern arms. Living as I do in that bird hunter's paradise, Northeastern South Dakota, I have plenty of opportunity to use them and plenty of targets to shoot at, and I seem to fill my limits just as well as I do with modern guns. The man with a good muzzle-loader, properly bored for the job at hand, need not feel that he is under any handicap except for speed of fire. His muzzle-loading shotgun, properly bored and loaded, will make clean kills as consistently as will a breechloader with loads of equal power.

The trouble with most muzzle-loading shotguns is that they were made before choke boring came into general use. They are cylinder bored and, of course, can give only cylinder-bore results, with an extreme range of around thirty-five yards.

Get a pair of those old barrels properly choked, and the difference is amazing. With the proper amount of powder shoved down her throat, she will hold her own in any company, as I have been able to prove many times by actual demonstration.

Now for how to load them. I will assume that you have already checked your gun over and found it safe to shoot, including good half-cock notches that will not yield to trigger pressure. First, place a couple of caps on the nipples and snap each barrel to clear the passage from nipple to chamber of any obstructions such as oil or grease or fouling of any kind. You can nearly always tell by the sound of the cap if the nipple is open, as it makes a hollow sound in the barrel. I usually blow through the barrel from the muzzle and watch to see if the smoke from the primer comes out each nipple freely. This indicates an open passage.

Now take your powder flask, which should have a charger top to cut off a load of the proper size, and pour a charge down each barrel. Follow this with two cardboard wads cut from extra thick cardboard, if you have it; if not, an old shoe box will do. Cut the wads *at least one gauge larger than the bore.* Push them down on the powder and hit them one sharp rap to seat them. *Don't pound your powder,* as this only heaps it up and causes erratic results.

Next, take your shot pouch, which also should have a charger top to cut off the proper charge, and pour a charge of shot down each barrel. Now comes the important part. Pucker up and spit down each barrel! This is important. A choke-bored barrel simply will not shoot when caked with black-powder fouling, and by spitting in each shot charge the fouling is kept moist and soft. The soft wad acts as a squeegee which cleans the barrel as each shot is fired. So loaded, a gun can be shot any number of times in a day without fouling troubles.

Now put in your shot wad. Push it down to the shot and hit it one light tap to seat it well. Don't pound your shot. To do so only deforms the pellets and causes them to go astray.

Now raise your hammers to full cock and place a cap on each nipple. Lower your hammers in turn on each cap, and with your thumb gently push each hammer down until each cap is firmly seated on the nipples. Raise your hammers to the safety notches and you are all set.

As to loads, I find it a good rule to use the same amount of shot and powder by bulk. Find a powder charge that is comfortable to shoot in your particular gun, set your shot charger to throw the same amount of shot by bulk, and you will have a well-balanced load that will give good results in any gun. I have tried it in a lot of them and it always works. The exact amount doesn't seem to make so much difference, just so they are equal. There may be better ways to load a certain gun, but this way will always give excellent results.

For most shooting I like to load them this way: For 20 gauge, 2½ drams of FFg powder and ⅞ of an ounce of shot. For 16 gauge, 2¾ or 3 drams powder and 1 ounce of shot. For 11, 12, and 14 gauge guns, 3 drams powder and 1⅛ ounces of shot. For 10 gauge, 3¾ drams powder and 1½ ounces of shot. These are moderate loads that will give good results in the field without abuse to gun or shooter. Of course, if you have a heavy, sound gun, you can use heavier loads without too much abuse; but I find it is a good plan to use a load that is comfortable to shoot. I think that results in the field will bear me out.

Now let's look at that muzzle-loading rifle. Field loading your rifle should be a simple business and not the complicated job some target shooters make of it. All you need to make a successful job of it is a powder horn with a charger top that will cut off the right charge of powder, some patch material of the right thickness cut into squares just big enough to cover your bullet, a pocketful of bullets, and some caps.

There is no set rule as to how much powder to use with a certain caliber bullet or rifle; this must be determined by actual test firing at the target. The load that groups best is the one to use. I have a .34 caliber that I use a lot and I find that thirty-five grains of FFFg works fine with a round ball and a patch that slides down easily. This rifle has fairly deep grooves. As a general rule, the rifles with deep grooves will shoot well with a patch that loads easily, whereas I find that the shallow wide grooves of a Springfield .58 caliber, using a round ball, need a patch so tight that they are really hard to start. I have also noticed that a rifle with too loose a patch will boom like a shotgun, while using a tighter patch they will crack like a rifle should. The difference in the report shows at once in the size of the group. If she doesn't crack, she doesn't shoot.

When you start to load your rifle, snap a cap on the tube to

clear the passage. Then take a patch and put it in your mouth and let it soak till you are ready for it. Take out your powder horn and pour a charge down the barrel (after blowing through it to see if the smoke from the cap comes out freely). Then place your wet patch squarely over the muzzle so that the bullet, when placed on it, will be in the exact center. Start it in the barrel with your thumb, then place your ramrod on it and give it a little start down the barrel. Take your ramrod out and fold the edges of the patch down on the bullet and push it the rest of the way down with the rod. Push just hard enough to seat it firmly on the powder. *Don't pound your bullet.* To do so will only knock it out of shape and, since you never will be able to pound twice alike, each shot will find a new spot in the target or game, and none of them where you aim.

Now put on your cap and press it down with the hammer, and you are ready for meat in the pot.

Now about that powder charge. As granddad always told me, there should always be a right smart charge in a rifle. By that he meant load her so she cracks. When the powder charge and patch are right for the bullet, there will be a clean sharp crack. When that happens they nearly always are shooting their best.

I like thirty-five grains FFFg in my .34 caliber. My friend Don uses fifty grains FFg in his .41 caliber. We both get splendid results. A .30 caliber I once had liked twenty-five grains FFFg. All three of these rifles had fairly deep grooves and used easy loading patches, just a nice snug fit.

But when we started to play with .58 caliber Springfields with three shallow grooves, we found that we had to use patches just as tight as we could start them, and eighty grains of FFg in order to make them crack like a rifle should. We could tell by the report if the shot went where we held or not. When she said "BOOM!" the shot was out of group every time.

So, take your hunting rifle and play about a bit with it and listen to the report. When she speaks out sharp and sarcastic-like, you are close to the right load and a few shots fired from a good rest will generally prove it.

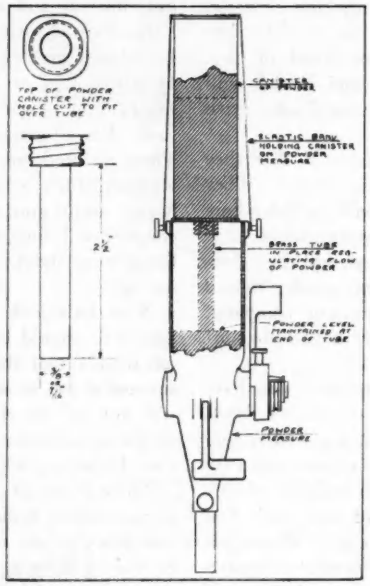
Now, a word about the killing qualities of your charcoal burner. Unless you have tried it before, you will be amazed at the killing power wrapped up in that little round pill. I used a .41 caliber to hunt woodchucks in northern Ohio when I was a kid, and, whenever I got a good solid hit ahead of the diaphragm, they always were awful easy to catch. Your old smoke pole will give you clean kills on any game within reason and not spoil much meat in doing it.

So, take the old guns out and put them in shooting order. You will discover a new thrill in hunting, and their performance will amaze you. ◆ ◆ ◆

UNIFORM POWDER CHARGES

In gravity-type measures, it is advisable to maintain a uniform amount of powder in the reservoir. This "kink," made from scrap, does it.

Take a piece of thin metal tubing of about three-eighths-inch outside diameter and about two inches long. Drill or cut out the center of a screw cap from a pound or half-pound powder can so that it is a snug fit over the tubing, the end of the tubing just flush with the inside surface of the cap. Square it up and solder fast.


TOP OF POWDER CANISTER WITH HOLE CUT TO FIT OVER TUBE
ELASTIC BAND HOLDING CANISTER ON POWDER MEASURE
BRASS TUBE IN PLACE REGULATING FLOW OF POWDER
POWDER LEVEL MAINTAINED AT END OF TUBE
POWDER MEASURE

Screw the spout so formed onto the can of powder. With your charger (Ideal or similar type) fastened to table or bench and set to throw the correct charge, invert powder can with spout into the reservoir of the charger. A large rubber band or cord, run from one of the lid screws over can and down to opposite lid screw will prevent the can from being accidentally displaced. With the can in this position, the powder will flow out of the spout, filling the reservoir up to the spout end, and will maintain this level.—A. M. Schnetzler

Air Guns For Aerial Targets *(Continued from page 13)*

centrated behind the projectile. This principle is basically the same as that employed in a manually operated tire pump when the handle is suddenly and sharply depressed.

There are advantages and disadvantages in both systems. The first type permits a variation of power to suit the needs of range, within limits. (It must be understood that the practical range of air guns is up to about twenty yards. This is sufficient for aerial target practice, the targets used being much nearer than that.) Also, the matter of recoil is eliminated in the compression type, as there are practically no moving parts to function upon the release of the trigger. The disadvantage of this type is the slowness of operation. Normally, it requires from about five to eight strokes of the pump handle to store the required amount of air. To maintain the zero of the piece, the same number of strokes should be applied each time to keep the propelling force constant. Overpumping will result in blowout of valves and damage to the gun. In this type of gun, due to the repeated pumping which is required, the washers wear out sometimes rather soon; but new ones cost only about a dime. These can be replaced easily.

The piston-operated guns are speedier because one operation compresses the mainspring and sets the piston; and, of course, the supply of air is constant. The disadvantage lies in the recoil which takes place from the piston slamming forward when the piece is fired. Operating on the piston principle are the Webley (made in England), the Haenel (a German product), and various American guns such as the Daisy.

Which is the best caliber to use? Naturally, the rifled models, with their skirted pellets, give better results. Based on my own experiments and on the advice of the factory, I finally decided upon the .177 pistol, and the .22 caliber rifle. However, for most of my aerial tin-can work, the lowly BB performed quite satisfactorily, particularly when first-grade shot was used.

In all of the calibers, the muzzle velocity is sufficiently great that we had no difficulty with leads when we switched to powder-propelled .22's, or even to the .30 Army carbine. The technique and sight pictures remained practically the same. ◆ ◆ ◆

The SEMIAUTOMATIC as a SPORTER

By COMMANDER
THURMAN RANDLE, USNR *

THE SEMIAUTO HAS ENJOYED but mild popularity as a sporter in the past. But in the anticipated increase in postwar hunting the popularity of the autoloader is likewise expected to soar to new heights. The reason for this is that many of the men who make up the increased roster of hunters will be men who have become used to the semiautomatic and full-automatic weapons of the Army. Most of them knew nothing about guns when they went into the service. Their military tutelage has been with semiautomatics and full automatics almost to the exclusion of other types. They have learned to rely on these weapons in battle, and it seems reasonable to expect that many of the men will want them for use in their forays into the hunting fields of peacetime.

Well, what about the semiauto as a sporter? Is it, or ain't it?

Perhaps it should be explained at the outset that the so-called "automatics" which have been manufactured for sporting use in the past are all semiautomatics. They really are not full automatic in action. The full-automatic weapon continues to load, fire, and eject as long as the trigger of the weapon is held down and there are cartridges in the magazine. This is a military or police action and should be, and is, practically restricted to these two uses by Federal law. The semiauto is in reality only a self-loading weapon which fires but one shot when the trigger is pulled. It then utilizes the power of that shot to operate the action, eject the fired case, and load a new cartridge from the magazine into the chamber. That is as far as it goes. It requires another trigger pull to fire another shot.

It is with this weapon that we are concerned here. We have no "truck" with the full-automatic weapons in this respect. They have no place in the field of sport shooting, either for target work or for field use in hunting. It is unfortunate that the semiautomatic action, the self-loader, ever acquired the name "automatic," because that tag is a liability and has been a disadvantage from the very start.

There is little doubt but that this very misnomer has had its effect in the many states and in the Dominion of Canada which have banned the use of this arm for hunting. Even Pennsylvania, probably the greatest game state in the Union, has legislated this action from its hunting coverts.

But there is another problem with this weapon that is not so psychological. This is the dangerous manner in which the semiautomatic arm has only too often been used in the field. In itself the semiautomatic action is a harmless piece of machinery. It takes the asinine co-operation of a "damphool" to make it lethal. While actually it won't kill an animal any deader than an old single-shot muzzle-loader, its potentialities for deadliness in improper hands are considerably greater. This, too, has been a liability.

The problem here arises from the fact that this action, by its very nature, encourages volume of fire rather than more deliberate, accurate, safe shooting. Loaded with a hatful of cartridges the inevitable tendency is to "burn 'em up." The accurate placement of those shots too often becomes a matter of secondary importance. The rip and snort of a fast-firing weapon is a thrill to the hearts of many people, but to the heart of the hunter on the next ridge, carelessly and mistakenly identified as a buck deer in the rut, it strikes cold terror.

The real problem with the semiauto as a sporter, then, is the misuse by irresponsible hunters of its faculty for quick loading. But this doesn't necessarily have to be so. It is possible to pull the fangs of this action so that it may be quite safely used as a sporter by the run-of-the-mill hunters afield. It was done in the case of the repeating shotgun in the hands of the waterfowl hunter when the Federal Government decreed that these guns must be throttled down to three shots. This same simple ex-

* A paper to be published in *The Transactions of the Tenth North American Wildlife Conference*, scheduled for release this fall. Reprinted by permission of The American Wildlife Institute.

pedient of limiting the magazine to three-shot capacity will completely remove the curse from the semiauto as a sporter. By taking away his hatful of cartridges, the hunter with the semiautomatic will be forced to slow down to more deliberate action. He will be required to use as much care in the placement of that first shot as the man with the bolt gun or any other manually operated repeater.

A limitation to three-shot magazine capacity will be no handicap to any hunter. It will be far less of a handicap to the deer hunter than it was to the wild fowler. There is rarely time to get in three shots at effective range. Except in cases of very ragged shooting, it is extremely rare that more than three shots will be required to bring any American game to bag. Such a limitation will, of course, require that the hunter exert more careful judgment of range and all other factors involved in good hunting and good shooting practice, but this is a move in the right direction. It will be imperative that the first shot is properly placed. This done, there will be far less need for the remaining cartridges in the clip. But, in case of necessity, there is still a second and even a third available for the *coup de grace*.

No, the three-shot limit will be no handicap. It still provides all that is necessary and offers a great deal more than is desirable. It should be a boon to the whole shooting fraternity, and paradoxically it should be a conservation measure. Less unfavorable publicity will be the result of more careful handling of these weapons and the whole family of shooters will benefit from that. And more careful shooting will waste less game. The fact that a second aimed shot can be delivered more quickly with the autoloader than with other rifles will mean the loss of less wounded game. The second shot often will finish the job.

The availability of popular new sporting arms of the semiautomatic type after the war is still a matter of uncertainty. What the manufacturers have in mind has not yet been revealed, but it seems reasonable to expect that new types of semiautomatic sporting arms will be offered to the trade. It is unlikely that the government policy with surplus weapons will be so generous as to release the Garand and the M1 Carbine from our war reserve.

The M1 Garand is a fine military weapon but its possibilities as a sporting arm are decidedly limited. The very nature of its mechanism will prohibit the use of the conventional sporter stock in remodeling to sporter style. And this same mechanism makes it quite improbable that its weight can be reduced to sporter dimensions. It certainly cannot be brought below eight and one-half pounds with iron hunting sights and not this low with the hunting telescope sight. Its M2 .30-'06 cartridge has ample power and accuracy for any American big game. But the M1 Garand was designed for this M2 cartridge, which is loaded with the 150-grain full-patched bullet to a velocity of about 2,700 f.s. Under present loadings this develops a breech pressure of about 38,000 pounds per square inch. At this pressure the weapon functions well, but it must be remembered that breech pressure is the one really important limiting factor in the design of an arm of this type. Sporting ammunition in .30-'06 caliber is often more heavily loaded and while the action of the Garand may be perfectly strong enough to withstand the increased pressures of this ammo, there is quite apt to be considerable trouble with extraction. Smooth functioning of the arm with such ammunition probably cannot be expected. After all, the Garand was designed for military, not sporting, purposes.

The M1 Carbine is a cute little job that has deluded a great many people into thinking they would like to use it in the deer woods, postwar. It is a nice, light-handling little piece that has been a bone of contention ever since it was born. Everything about it, including its very purpose in life (i.e. replacing the pistol, which it never did successfully) has been criticized. It has an irritating habit of jamming entirely too frequently at exactly the wrong time, and the whole magazine is likely to fall out when you least expect it. But these little quirks can probably be remedied in time. All new weapons have such bugs that have to be worked out. Even the now-dependable Garand originally had plenty of them.

But the important point here is the cartridge. The little carbine cartridge is not a deer cartridge. Someone recently dubbed it a "jack-rabbit cartridge, period," and he very nearly hit the nail on the head. It is, in fact, the old familiar .32-20 H.S. in a new package. The sovereign states of Maryland and Washington do not consider this a deer rifle. Maryland requires deer rifles to have a muzzle energy of at least 1,200 foot-pounds. The little carbine cartridge isn't in that class and is consequently outlawed immediately. While the State of Washington does not specifically prohibit the use of the carbine cartridge in hunting deer (because the gun is still a strictly military arm), the list of cartridges taboo includes the .38-40 and the .44-40. Both of these are more powerful than the .30 carbine cartridge, and it is reasonable to expect that the latter would meet with little favor by the authorities of that far-western state.

Make no mistake about it, the carbine can kill deer. But so will the .22 Long Rifle—if it hits 'em right. That doesn't make the carbine any more a deer rifle than it does the .22. Fortunately the Winchester Repeating Arms Company, designers and manufacturers of the carbine, have recognized its shortcomings in this respect. They have publicly stated that it will not be made available as a commercial job with its present cartridge after the war.

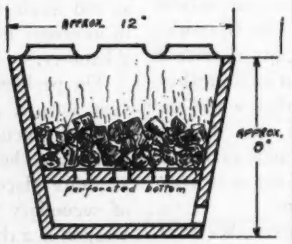
The full-automatic feature of the more recently designed "M2" Carbine eliminates it from all consideration as a sporting weapon.

The Reising Models 50 and 55, adopted and issued for a short time by the Marine Corps, are .45 caliber weapons of the tommy-gun class and as such have already been disposed of. They are not sporting arms. But the Reising Model 60 is something else again. Its action is semiautomatic and it has a barrel eighteen and one-quarter inches in length which just lets it under the fence from the standpoint of the Federal firearm laws. It is chambered for the .45 Automatic Colt Pistol cartridge and (*Continued on page* 34)

BULLET METAL

Need lead for reloading? Get one old storage battery. Remove straps, terminals, etc., and melt these down in an iron pot in the usual manner.

Next, get one earthenware pot of the kind used sometimes for cooking, often for heating soldering irons. (See drawing.) Build a charcoal fire on the perforated grate. Pile on top of the fire the plates, paste, and loose powder (but not the separators) from the battery. Add more charcoal to the capacity of the pot. To increase the draft, try placing a flue of sheet-iron pipe over the pot. The lead oxide and lead sulphate melt readily and the molten metal runs out through the opening in the lower side of the pot.



As much as eight or eight and a half pounds of lead can be retrieved in this way from some batteries.—*James F. L. Childs, Spring Hill, Alabama.*

NAVAL ACADEMY RIFLE TEAMS

By LT. COMDR. JOHN A. QUENSE, USNR *

RIFLE TEAMS WERE FORMED at the Naval Academy as early as 1905, but small-bore shooting was not started until 1914 with the entry of a Class B team in the Intercollegiate Indoor League. This team won its first match against the University of Wisconsin and went on to tie Cornell for second place in the league. Competition continued with Class A teams and in 1917, when the National Rifle Association first sponsored an Intercollegiate Small Bore Match, the Naval Academy entry placed ninth out of a field of thirty-two contestants.

Since 1928, when the National Shoulder-to-Shoulder Intercollegiate Championships were started, the Naval Academy has taken first place six times. Their score of 1,397 fired in 1937 was a new record and has been broken only by the State University of Iowa with a 1,403 in 1940. Eleven All-American Rifle Team members have been selected from Naval Academy teams. One of these men, Midshipman J. W. McCoy (now Lieutenant Commander McCoy, USN) was also National Individual Champion for 1939.

At left: **John H. Branzell, Varsity rifle coach at the Naval Academy, supervises practice and picks teams. *Below:* Midshipman F. P. Ritchie, Jr., Varsity Team Manager, scores a target.**

Firing was suspended at the Naval Academy from 1918 to 1927 when a Class A team was again entered in intercollegiate competition. Since that time 144 shoulder-to-shoulder matches have been fired, with 127 wins. The present gallery record is 1,447, fired by the College of the City of New York in 1927. The highest score by a Naval Academy Team is 1,422, fired against the University of Maryland in 1940. The individual gallery record is 295 (prone 100, kneeling 99, standing 96) fired in 1937 by Midshipman W. L. Kitch (now Lieut. Comdr., USN) who was a three-time All-American selection.

The excellent indoor gallery at the Naval Academy was constructed in 1926, was doubled in size in 1931, and the present lighting system was installed in 1938. The facilities now consist of two fifty-foot ranges, back to back, each with eight firing points. The whole gallery is uniformly lighted by nonglare fixtures with more intense illumination directed on the targets. A trolley system for running out targets has hangers of three lengths for prone, kneeling, and standing positions. There is ample space for spectators and scoring tables between the two firing lines, and enclosed racks for rifle storage and lockers are conveniently arranged along the walls. Two large blowers keep the range free of powder fumes.

Two squads, each of twenty-four men including a manager, are kept busy for a season which normally opens December first and ends in the latter part of March or the early part of April with the Naval Academy Championship Match. This match is open to any midshipman who wishes to enter. A score in the high 280's usually takes the match.

Shooters are not inexperienced when they report for the first turnout; each midshipman has had an exceedingly fine basic training in the use of small arms during his plebe summer. ("Midshipman Marksmanship," by Lt. Col. J. W. Moreau, USMC, RIFLEMAN, October, 1944.) With this excellent background, only the problems of selecting the most apt and concentrating on individual difficulties in position and co-ordination are left for the coaches to work on. Plebes (freshmen) reporting for the first turnout usually number in excess of 100, from which the squad is selected by elimination firing.

The Plebe teams are coached by selected officers who volunteer for this work in addition to their regular duties at the Naval Academy. These men are expert riflemen themselves, and the love of shooting adds much to their coaching.

The present varsity coach is Mr. John H. Branzell, an ordnance man, who has been associated with Naval Academy teams since 1929. He supervises varsity practice shooting and selects the teams for varsity matches. In his hands is the development of top-flight shooters who, in normal times, would compete in the National Intercollegiate Team and Individual Matches.

Constantly occupying the attention of the coaches is the problem of nervous tension. At present, all matches are fired shouder to shoulder, and confidence and proficiency must be built up early in the season.

The season which closed on the ninth of March has been one of no defeats. It has been increasingly difficult to obtain matches because of wartime demands and restrictions, but the general opinion of the coaches who have brought teams to the Naval Academy has been that their work is an important contribution to the war effort.

The importance of preinduction rifle training cannot be overemphasized. In addition to specific knowledge and skill in shooting, a trained rifle shot carries into the service a part of his civilian life which makes induction and indoctrination much less bewildering. ◆ ◆ ◆

* Officer representative for small-bore rifle, associated with Naval Academy teams since 1941.

BULLET WOUNDS

By ELMER KEITH

MODERN RIFLE BULLETS, designed for use on big game, may be divided into three groups: soft point, hollow point, and the various metal-tipped or capped, expanding Spitzer types such as the bronze point, umbrella point, et cetera.

Remember that the wound channel made by any given bullet varies in both depth and diameter, according to its velocity when it strikes the animal. For instance, I killed three big mule bucks, all at or under 100 yards, with the .405 Winchester. One was shot in the top of the withers as he lay in his bed below me. The 300-grain soft point penetrated into and lodged in the paunch. Another was shot running broadside at sixty yards. The same type bullet broke both hips and lodged under the skin on the off side. The third was shot in the chest, facing me, at around seventy yards. The bullet went through the heart, missed all bones, and lodged under the skin of the left shoulder as he was standing quartering toward me. Yet many times I have seen identical bullets from the same rifle go completely through mule bucks and big bull elk at 200 yards or over. At long ranges, wound channels are much smaller in diameter. The bullet does not expand so much; hence, the greater penetration.

You can speed up almost any expanding bullet until it will blow to bits soon after penetrating the ribs of a deer or elk. Such a bullet will disintegrate and stop in the lung tissue without ever marking the chest walls on the off side. Or you can drive that same bullet at very low velocity and shoot it completely through the same animal, leaving only a very small, hard-to-trace wound channel. Expansion is in direct proportion to velocity.

Penetration of sporting bullets at the same velocity is also in direct proportion to their sectional density, or their weight and length in proportion to the caliber of the rifle. A short, lightweight bullet of very low sectional density may explode on impact and cause very shallow wounds. A long, heavy bullet of great sectional density with the same type of point and the same caliber and velocity will penetrate deeper, in direct proportion to its greater length. It, too, may blow to bits if fired at close range into an animal at very high velocity, yet the wound channel will be many times deeper than that of the short lightweight bullet at same velocity.

I have fired 150-grain Spitzer expanding bullets broadside into an elk's lungs at 200 yards and found that they penetrated but six inches and blew out a small crater about the size of a hen's egg. These bullets were .30 caliber, fired at a muzzle velocity of 3,000 feet. I have seen 180-grain bullets, fired from a .300 Magnum at an elk at the same distance and hitting the same spot, go completely through the animal and out the other side, showing an equally large wound channel all the way through the beast's lungs and ribs.

The three types of expanding sporting bullets above listed may be again divided into two groups. One group, with round nose or blunt hollow point of great sectional density, is designed for short to medium ranges. This type is by all odds the most reliable in its expansion and action on game, when said game can be approached close enough to use this type effectively. It is the ideal type of bullet for timber shooting and any shooting up to 200 yards. On big game (elk, moose, or bear), such bullets are usually the best available up to 300 yards.

Under the other group of sporting bullets come all types of long, sharp-pointed, Spitzer-type bullets, designed for maximum ballistic efficiency at the longer ranges. Bullets with long slender points maintain their velocity and energy at much longer ranges than those with blunt or round noses. Sectional density also has a very important effect on remaining velocities and energies. This Spitzer-type bullet is much flatter in its trajectory and makes certain hits easier at long ranges than bullets of blunt-nose form. However, all types of Spitzer bullets will, at times, turn in their course after striking an animal. The full-patch 150-grain .30 caliber is the worst offender in this respect that I know of. Many types of expanding-point Spitzer bullets are not reliable in their expansion, especially at the longer ranges. They make hits much more certain on running game or over unknown ranges, but are not always as reliable in their action on game as the round- or blunt-nose expanding types. But long-range shooting necessitates long streamlined bullet shapes, and they are at their best on medium-sized big game; sheep, goat, and mule deer.

Next, let's consider soft-point bullets. The early forms of this type had long exposed soft points; and, when fired at velocities for which they were made, they have proved (with one exception) the most reliable bullets I have seen used on big game. This type is well illustrated by the old .30-40-220 Krag load; the long, exposed, soft-point 220-grain .30-'06 load; the .35 W.C.F. 250-grain load; and the 170-grain .30-30 soft-point load. This type of bullet is usually fired at velocities from 2,000 to 2,400 feet and, when used at such velocities, the bullet wounds were always the same depending on ranges used. This type of bullet opens a good entrance hole, usually full caliber or slightly larger, then expands very quickly for the front third or half of its length, opening a good-sized wound channel of one to two and a half inches in diameter through the animal. Except in the .30-30, it usually penetrates clear through deer on broadside shots and very often on elk with lung shots. The bullets hang together well and are usually nearly intact and perfectly mushroomed. I know of no more reliable bullet in its action on living flesh.

Later, the 220-grain, short, exposed .30 caliber bullet was brought out by Western for use on heavy game. It penetrates much better than the long, exposed, soft-point type and is better for elk, moose, and big deer, but is not a very quick killer on deer as the expansion is delayed too long and it will slip almost through a deer before expanding sufficiently. It is one of the two best types of .30 caliber missiles for heavy game. Although it is on the light side, it is very reliable in its action.

One other type of soft point may well be covered here. This is the Spitzer type designed for long-range shooting, both in plain soft-point type and in the wire-protected Newton type. Of the two types, the Newton bullet withstood deformation in the magazine very well, while the plain soft-point type, such as the 270-grain .375 Magnum and the old 87-grain .250 Savage show points somewhat battered from recoil while in the magazine. Although it is a Spitzer-type bullet, I have never seen this soft-point type fail to expand on game and, with the exception of the .250 Savage, it gave very reliable

results from several Newton rifles as well as from the .375 Magnum and the .300 Magnum.

When made with a wire-protected point, I prefer this type of soft-point Spitzer to all hollow-point or patent-point long-range bullets. As this type is usually used at high velocity, the wounds are nearly always shorter in depth and have very large diameters, often huge craters blown out in the animal. When penetration is sufficient they are very destructive and impart the full shocking effect of the load to the animal, but at more moderate velocities they show much the same action as the old, long, exposed soft-point bullets at moderate velocities. I have never seen a soft-point Spitzer-shaped bullet glance or turn from its course. When such bullets are placed in the lung cavity they kill very quickly; often instantly on lighter game. Blunt-nose, hollow-point bullets are best exemplified by the Remington Express line. My observation has been that they expand quicker than the long, exposed soft point at the same velocities, probably due to the trapped air rupturing the jacket point and turning it outward. Penetration is seldom as deep as the plain soft-point type, but they are very reliable killers. The wound channels are usually larger just after entering the animal than are those made by the soft-point, long, exposed type. The wound channels are usually shorter in length than those made by even the 220-grain .30-'06 Remington Express, usually stopping under the skin on the off side if fired broadside into a mule deer's shoulders. They are very reliable killers on animals of the deer and small bear class, but quite often do not penetrate deeply enough on heavy game.

The Peters Belted line is the one exception I mentioned in discussing the soft-point types. This bullet is the most reliable hollow-point bullet I have seen used on heavy game and is very good for lighter game at reasonable ranges. I have seen many animals killed with both the 225-grain and 180-grain weights in .30 caliber. This bullet opens the largest entrance hole in an animal of any I have even seen in use, except surface blowouts from the .220 Swift and .250 Savage. The usual thing is for it to open a hole about the size of a silver dollar, and this size wound channel continues right on through lighter game, and often through elk as well, when turned broadside. It gives even better penetration than any of the soft-point types, as only the tip around the huge crater in the point expands unless heavy bones are struck. It seems to drop even small deer just as quickly as larger game and there is almost never any bloodshot meat around the bullet wound. It is a very reliable bullet in its action on any game, and the best bullet I know of in .30 caliber for our larger game. However, the blunt point causes it to shed velocity rather fast in spite of its excellent sectional density, and for this reason is not the ideal long-range bullet.

Next, let's look at the various types of Spitzer-pointed, long-range missiles. As before stated, the wire-protected soft-point type bullet rates tops with me, with the open point (or cavity point, as the Western and Western Tool & Copper Co. types are called) scoring second best. Both of these types open fairly large entrance holes and have proved very reliable. I have never seen the W.T.C. Co. bullet glance or deflect from its course, but have seen the 180-grain Western open point do so and come back out the same side of a goat, within a few inches of the entrance hole, after splitting one side of the heart. I have heard of many more such instances. The more delayed the action of expansion, the more chance there is of this sort of deflection. These bullets are, however, the most reliable expanding types of long-range bullets.

The Remington Bronze point and the Winchester so-called soft-point Precision B.T., which is in reality a revised edition of the old Umbrella point, usually penetrate deeper than is desirable before expansion starts, and so go clear through our lighter game. The Peters Protected Point has the same action. They tear large exit holes but leave almost no entrance hole at all. It is usually hard to force a match into the entrance hole in big game from such bullets. When they strike the paunch they usually blow up and stop, leaving no blood trail. I have seen more failures on big game and more wounded animals from this type of expanding Spitzer bullets than from all others combined. Remington recently improved their bronze point in its expansion; but, even so, I do not believe any of these metal-capped, expanding, trick-point bullets will ever equal in actual performance on game the wire-protected soft-point or the small-cavity or open-point types. They are ideal from a ballistic standpoint, but on game they often produce a sadly different story.

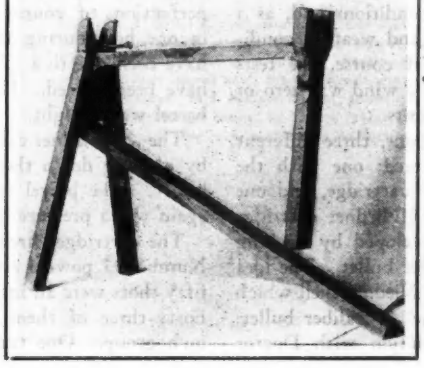
The soft-point and open-point Spitzer usually starts expansion immediately on entering the animal and the wound channel is shaped very much like a funnel. Its diameter increases as the depth of the channel increases, until the fragments of the bullet become spent and stop. This type is, by all odds, the quickest killer on lighter game animals, but not always the best on heavier game unless the bullet is placed in the lungs. At usual ranges, these bullets, in .30 caliber and from 172 to 180 grains in weight, usually stop in the animal; but at long ranges they usually go through on broadside shots, tearing much smaller wound channels.

With all such medium-weight, streamlined, modern rifle bullets fired at 2,700 f.s. or higher velocity, there is always a large area of bloodshot meat surrounding the actual bullet wounds. This is the result of high velocity and bullet disintegration, and such fast missiles always damage more meat than the slower, heavier projectiles. Remember that a certain bullet and load may blow a big hole clear through a small, soft-meated deer, sheep, or antelope, but when turned on a tough old bull elk or Alaskan Brown bear it will probably make only a small wound channel. Remember also that the .405 Winchester and the 300-grain .375 Magnum loads waste less meat than will a .30 caliber high-velocity missile on game like deer.

These observations are from my own experience, but this is "a drop in the bucket" compared to the experience of many African hunters. ◆ ◆ ◆

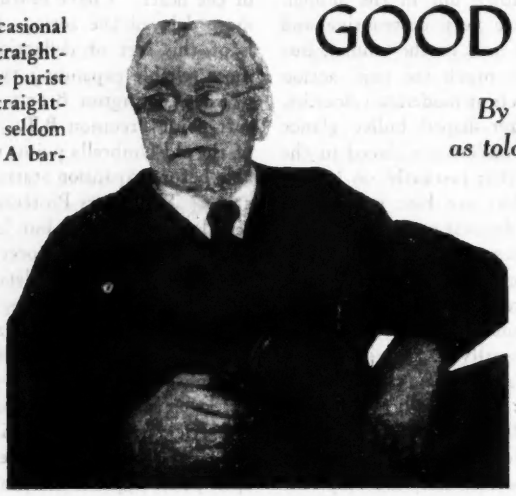
SCOPE STAND

Here is a collapsible scope stand made from scrap pieces of wood, three hinges, one hook and eye, and a few nails. It really works. Elevation of the eye-piece end of the scope is accomplished by sliding the rear leg up the inclined plane.—Dr. R. E. Thompson.



BARREL STRAIGHTNESS AND ITS RELATION TO GOOD SHOOTING

By A. O. NIEDNER
as told to Gerald O. Kelver



A. O. Niedner, dean of the old school of fine craftsmen whose super-accurate barrels made American rifles world-famous.

TO THE AVERAGE TARGET or occasional shooter, the question of barrel straightness is no problem. However, to the purist or technician, the problem of barrel straightness is a goal to strive for, but one seldom attained in the ordinary rifle barrel. A barrel which requires straightening can never be considered a "true" barrel. Such a barrel is bound to "walk" and, although it may finally settle down, it will not be perfectly straight. That is, if the barrel were rotated through 360 degrees in a V-rest and fired at several points during the rotation, it would not hold within the limits of its own normal shot group.

In my own work, I always strove for perfection and if a job were not worth doing well I left it alone. There can be no mistake in gun work; it must be done *right*. No matter how perfect a piece I made, I always felt I could do it better and tried to do just that on my next job. To this end, I could have found no better instructor than Dr. Franklin Mann, with whom I was closely associated and whom I assisted in many experiments.

After numerous experiments and tests, Doctor Mann found a method whereby the straightness of a barrel could be proved beyond a doubt. This test was known as "the barrel rotation test." A barrel rotation test could, of course, only be conducted by using the Mann-type concentric V-rest. After Doctor Mann's death in 1916, the V-rest which we had constructed to carry out his experiments came into my possession and remained so until I retired from active participation in gun work.

As all the readers probably know, the Mann V-rest was a type of machine rest in which the barrel could be rotated and fired on a constant axis. The base of this rest was necessarily of heavy concrete construction to assure uniform results.

In preparing and making tests or experiments, I always tried to carry them out under the most ideal conditions and, as a result, always picked as near perfect days and weather conditions as the weatherman would allow. Of course, the tests were made on days when the velocity of the wind was zero or such that it had no bearing on the experiments.

As shown in the accompanying illustrations, three different types of barrel rotation tests were performed; one with the popular .30-'06, one with the .25 Niedner cartridge, and one using the .257 Roberts cartridge. (The .25 Niedner cartridge was a Magnum-type cartridge which I developed by necking down the .30-'06 shell to take the .25 caliber bullet. The idea came, of course, from my original .25 Krag Niedner shell which was a .30-40 case necked down to take the .25 caliber bullet. This latter shell was developed in conjunction with Doctor Mann, using the famous base-band bullet. I later adapted the cartridge case to take the .25 caliber commercial bullet.)

The .30-'06 barrel was fired in the concentric rest at 200 yards. The barrel of this rifle was thirty inches long and was a pressure barrel which I had made especially for experimentation. The barrel was fired for a fifty-shot group. The ammunition used was fresh Government Issue match ammunition using the nine degree boattail bullet.

The test was made November 25, 1926, at Dowagiac, Michigan. Of the fifty-shot group, forty-two of the shots struck inside a two-and-one-half-inch group, and eight shots were inside of a four-and-one-thirty-second-inch group. One ten-shot group was within a two-and-five-sixteenths-inch group. All groups, or the entire fifty shots, were fired without cleaning the barrel.

This barrel was straight, as can be seen by the bullet holes in the four-shot group pictured. (See Illustration 1.) If a circle is drawn through these bullet ruptures it will be found that One, Three, and Four are equally or 90 degrees apart on the circle. The circle is a reflection of the turning of the barrel as it was rotated through the entire 360 degrees with firings being made at each 90-degree interval.

The reader will note that Number Two shot does not conform to the circle grouping. However, as Doctor Mann proved in his tests and as outlined on Page Eighty-seven of the "Bullet's Flight," if all the shots of the barrel rotation test are within the normal shot group, the barrel is straight. (The acme of perfection, of course, is a barrel which will place all bullets in one hole during the rotation test.) This shot could also have been due to a "flyer" and, for a conclusive test, it should have been refired. However, my point had been proved—the barrel was straight.

The .25 Niedner cartridge, as I previously explained, was made by necking down the .30-'06 cartridge to take the .25 caliber bullet. The barrel tested was twenty-eight inches long, and again was a pressure barrel made expressly for experimentation.

The cartridges fired were loaded with thirty-seven grains of Number 17 powder and a 100-grain Western bullet. The entire fifty shots were all inside a three-and three-quarters-inch group. Forty-three of them were inside a two-and-seven-sixteenths-inch group. One ten-shot group was inside a one-and-three-

eighths-inch group. All shots were fired from the Mann V-rest at 200 yards.

The rotation test, performed as for the .30-'06 barrel, showed that shots One, Three, and Four struck a circle five and one-quarter inches in diameter at 90-degree intervals. Shot Number Two was in place at the 90-degree interval but was fifteen-sixteenths of an inch out of line with the others. This, again, was undoubtedly the fault of the cartridge and again illustrated that, even under perfect conditions, it is impossible to put consecutive shots through the same hole. (Illustration 2.)

I also performed tests using a barrel chambered for a .25 caliber bullet and utilizing the 7 mm. cartridge case necked down. I developed this cartridge in conjunction with Doctor Mann and later named it after my friend Ned Roberts, who was particularly interested in the .25 caliber and has had much success with it. The tests for this particular caliber were performed on June 17 and 18, 1928.

I had several thoughts in mind when I conducted the tests with this caliber and, as a result, I varied my test slightly from that conducted with the .30-'06 and .25 Niedner Magnum. The first test was made using a cartridge loaded with thirty-eight grains of Number 17½ and using a 100-grain Western bullet. Two targets were fired using this combination and the results are shown in the accompanying illustration. (See Illustration 3.) Using the V-rest at 200 yards the diameter of the one-shot group measured two and one-eighth inches and the other three and five-eighths inches. However, you will note that the one flyer on the two-and-one-eighth-inch target enlarged the group; otherwise the group would have measured only one and eleven-sixteenths inches at 200 yards. On the other target there were two flyers which enlarged this group to three and five-eighths inches; but the main group again remained within one and eleven-sixteenths inches at 200 yards.

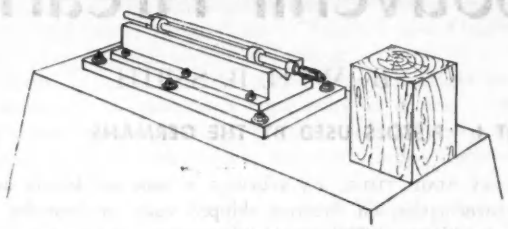
This test was performed as a powder accuracy test and the reader will note that, later in my experiments with this cartridge and with a different powder, the basic group is actually enlarged. However, the other type of powder held a more consistent group. Number 17½ powder gave a smaller basic group but some uncontrollable factor was added which enlarged the over-all group. However, I have always liked this powder and have obtained excellent results with it.

Continuing my experiments with this cartridge on June 17, 1928, I changed loadings and fired one group at 200 yards using thirty-four grains of Hivel and a 100-grain Western bullet. This group diameter was two and seven-sixteenths inches. I next performed a barrel rotation test with the results indicated in the illustration. (Illustration 4.) The barrel was perfect, each shot falling into alignment as the barrel was rotated.

I had to discontinue my experiments that day but returned the next day to fire a fifty-shot group. It is my contention that one five- or ten-shot group does not prove the capabilities of a rifle but that a fifty-shot group will give a very good picture of the gun's ability. The diameter of the fifty-shot group fired on this particular day was three and three-quarters inches at 200 yards.

From these illustrations and explanations, it is hoped that the reader will glean some information which will enable him to better understand the principle of barrel straightness and the basic reason for planned experimentation. ♦ ♦ ♦

THE MANN "GIBRALTAR REST"

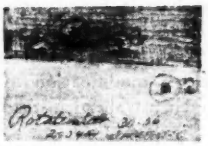


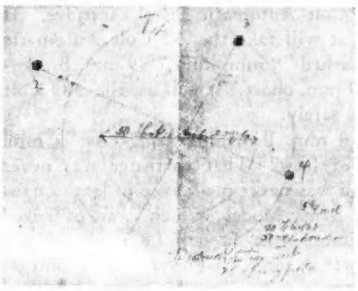
The barrel to be tested was equipped with two accurately turned, tightly fitted, concentric rings of steel or maple wood, either integral with the barrel or tightly fitted to it.

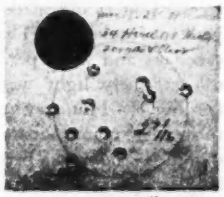
The barrel, with its concentric rings and with the stock and action removed, was placed in a V-shaped trough, thirty inches long, weighing thirty pounds, made with absolute accuracy of fine bronze. A special concentric action was screwed on to the rear of the barrel. This action was equipped with a hook for drawing the enclosed bolt and a wire which served as a trigger. The trigger worked in a slot at the rear of the action.

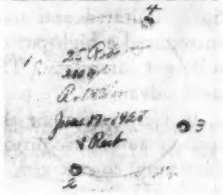
When fired the barrel recoiled straight to the rear, sliding in the V-trough on its concentric rings without the slightest whip or buckle. The recoil was absorbed by a heavy wooden block placed to the rear of the action.

The bronze trough was bolted to a cast iron slab, thirty-six inches long and sixteen inches wide, weighing 180 pounds. This slab rested on a concrete pier and was securely fastened by six bolts extending sixteen inches into the concrete. The foundation, measuring five feet by two feet, was about forty inches high above the ground and extended below the ground to bed rock (which, fortunately, was only several feet below the surface). The whole structure weighed approximately three tons.









Cut No. 1 (left, above) shows a four-shot .30-'06 rotation group which proves that this barrel was straight. Cut No. 2 (left) shows a similar rotation-test group using a 28-inch barrel with the .25 Niedner cartridge. Cuts No. 3 (below) and No. 4 (right) show three accuracy tests with different loads, while the lower four-shot group on Cut No. 4 shows a practically perfect rotation group.

Souvenir Firearms of World War II

By W. H. B. SMITH

PART I: PISTOLS USED BY THE GERMANS

EVERY MAIL THESE DAYS brings a flood of letters asking information on firearms shipped back or brought back by our soldiers. *"Will my pistol use American ammunition?" "What caliber ammunition will my pistol shoot?" "Is my pistol a good make?" "How does my pistol compare with standard American makes?" "Can my pistol be altered to handle American cartridges?"*

Change the word "pistol" above to "rifle" or "shotgun," and the questions remain the same. It is necessary, therefore, to present a generalized study of each class which will answer most of the hundreds of questions which pour in monthly and which are impossible to answer promptly and individually.

The number and variety of weapons reaching this country from abroad is astonishing to anyone unfamiliar with the manufacturing methods and the police psychology of prewar Europe. In the United States for the past twenty years we have had only one manufacturer of pocket automatic pistols—Colt's. (Hi-Standard made the only other automatics during that period, and until the advent of the war their production was confined entirely to target automatics.) Furthermore, we have had more and more restrictive legislation concerning the ownership and transport of pistols. Perhaps purely incidentally, we have also had a general increase in crime!

In Europe, on the other hand, and in Germany in particular, the development and manufacture of pistols went hand in hand with the general research which opened up new fields in everything from arms to atomic fission. In a period in which American handgun "improvements" were confined to arching trigger housings and changing stock checkering, practically every nation in Europe introduced pistol design features of advanced form. Austria produced several types of automatics with double-action systems. Belgium manufactured the pistol which John Browning designed as an advanced form of the service pistol he originally designed for us. Czechoslovakia officially adopted an improved double-action automatic. France modified the original Browning locked design and also brought out a tip-down barrel double action. Germany perfected double-action pocket automatics, introduced the P-38 as successor to the Luger, and made strides in metallurgy which we haven't yet approached. (The German development of Duralumin receivers and slides permitted the manufacture of quality arms of extremely light weight at a fraction of the cost of steel forging.) Hungary modified the locked Browning. Italy simplified manufacture and takedown on Berettas. Poland modified the new Belgian Browning. Russia simplified the action and the manufacture of the original Browning lock. Spain imitated and modified dozens of standard designs and introduced a high-powered blowback which will handle several different cartridges. Those are only the *high lights* of the European advances.

In Germany alone there were twenty-five manufacturers of quality automatic pistols! Not only was designing and manufacturing encouraged, but pistol ownership and shooting by responsible citizens was given official co-operation. Perhaps purely incidentally, Germany had a considerably lower crime rate than we did during the same period.

German Walther Models PP (left) and PPK (right). Both these models were made in calibers .22 LR, 7.65 mm. (.32 ACP), and 9 mm. (.380 ACP). The PP (Police Pistol) shown is a presentation specimen, made of soft metal, not intended to be fired. The PPK, although plated and engraved, is of steel and usable. Be sure which type you have before you try firing it!

Entirely aside from the police aspects, however, the handling of weapons was an effective part of the military training which gave Germany victory until the weight of American industrial production and manpower finally turned the scales. All this would seem to indicate that research in all lines of endeavor must be part of the American scheme of things in the future. We must lead. We no longer dare to follow.

What about *your* pistol? Well, let's break the list of importations into two general brackets: blowbacks and locked-breech pistols.

Blowbacks are arms in which the breech is held closed during the period of high pressure by the weight of the moving parts and by the springs those parts must compress during rearward movement. In this type of arm, the cartridge case head thrusts back against the breechblock to start opening the breech at the same time the bullet starts down the barrel; hence, only low-powered cartridges are adapted to this system *unless the moving parts are unusually heavy and the springs extremely powerful.* (The "blowforward" is merely a modification of this system in which the moving parts are thrust ahead instead of being driven back.)

If your pistol is of this type and is marked "6.35 mm.," it will safely handle the .25 Colt Automatic Pistol cartridge. If it is marked "7.65 mm.," it will take the .32 Colt Automatic Pistol cartridge. If it is marked "9 mm. kurz," "9 mm. Browning," "9 mm. corto," or "9 mm. chort," it will use the .380 Colt Automatic Pistol cartridge safely.

Should it be stamped "9 mm. Browning Long" or "9 mm. Hi-Power," you are out of luck. That cartridge was never popular in this country and was never made here in large quantities. It fits the Belgian Army Model (which is an oversized .32 Colt Auto in appearance), the French Le Francais, and the English Webley & Scott 9 mm. Hi-Power. Ammunition for this will be obtainable only from abroad. If you have one

of these, better just put it safely away as something to look at and, maybe, lie to your grandchildren about.

If you have a German Dreyse marked "9 mm. Parabellum," you can use the 9 mm. Luger cartridge made in this country—but we advise against it. This is a blowback pistol with a spring so powerful that a folding lever is built into the weapon to permit the breechlock to be pulled back. While the pistol is very well made of good materials, it is inherently too liable to breakage. So many souped-up loads have been issued in this caliber that it is recommended only with a locked-breech action.

The Germans used many Spanish Astra pistols of 9 mm. Bayard caliber which will handle the 9 mm. Luger or the .38 Colt Automatic Pistol cartridges interchangeably, strange as it may seem. These, too, are blowback pistols fitted with very powerful springs. As spring power lessens with age or use, such arms become increasingly dangerous. These Astra pistols are very deceptive in that the general finish is so good that even small arms experts of high caliber have recommended them for reliability. Even on rather close inspection they are machined and polished so well that they create the illusion of being made of very fine materials. Quite recently I have seen three samples in which the violent slam back of the slide as it hit the receiver

Typical German Luger, and the two bullet styles in which the 9 mm. Luger ammunition is made. Many Lugers were also made in caliber 7.65; but all Lugers are essentially alike in general appearance and no other pistol uses the hinged-toggle locking system typical of the Luger. This weapon has nothing in common with the P-38 except its calibers.

stop broke the slide completely at the breech and permitted the breechblock section to fly back at the shooter. An examination of the broken edges showed the metal to be cast instead of forged.

While literally hundreds of types of blowbacks were used by the Germans, since they took over the arms of all the areas they overran, the following list of makes may be set forth as top quality:

Bayard; Beholla (this pistol in caliber 7.65 mm. Browning was also made in Germany under the names Leonhardt, Menta and Stenda); Beretta; Browning; Clement C.Z.; D.W.M.; Dreyse (in calibers 6.35 mm. and 7.65 mm.); Erma; Gecado; Haenel; Helfricht; I.A.G.; Kaba; Kobra; Kommer; Langenhan (in caliber 6.35 mm. The .32 or 7.65 mm. caliber has a freak-type breechblock which can work loose and blow back in the shooter's face, hence is not recommended); Le Francais; Lignose; Lilliput (in 6.35 mm. caliber only. The original pistol was made in caliber 4.25 mm. and cartridges are not obtainable in the United States); Mann; Mauser; Melior; Menz; Ortgies; Pieper; Rheinmetall; Ruby; Sauer; Schmeisser; Schwarzlose; Simson; Steyr; Stock; Star (heavy Spanish models in calibers 6.35 mm. and 7.65 mm.); Walther; Wiener; Waffenfabrik; and Zehna.

From a design standpoint, the Walther PP and PPK, the Sauer Model 38, and the Mauser Model H Sc are outstanding. All have double-action systems. The Walthers and the Sauers may be encountered with white metal receivers (grips) and slides or just with white metal slides. These are cast Duralumin and are as safe as steel without the weight.

However, a word of caution about these lightweight pistols: Duralumin can be pitted and eaten away by caustic. Hence, these arms should never be blued in the manner steel weapons are treated. Some models will be found with a blue finish which is little more than a surface varnish.

A further warning is necessary about Walther presentation pistols: Special models were made of a bronze metal which were not intended to be fired. These pistols may be recognized by the fact that the barrel is of the same green-gold-colored metal as the slide. Usually they are beautifully engraved. The lands will go out of the barrel after firing a very few shots and continued firing will make the arm really dangerous.

Note that these presentation arms are not to be confused with the regular Walther line of steel pistols which may be engraved and plated with silver or gold. These standard weapons may be recognized by their weight and by the fact that the barrel is steel. The lightweight Duralumin pistols also have steel barrels, some of which may be of stainless steel or may be Stellite lined.

If your blowback pistol is one of the makes listed and is in good general condition, it may safely be used with correct United States ammunition. If it is not in the list but bears a proof mark and is of reasonably heavy construction, it is also likely to be safe for limited use, though not particularly recommended.

What about your locked-breech pistol? If it is a Frommer or a Frommer-Stop, it will be chambered for the three basic cartridges listed for the blowback—the .25 ACP, .32 ACP, or .380 ACP will chamber and function properly according to caliber. This is a good but freakish design and if it dropped the receiver may be dented. This will cause the pistol to jam. This weapon is not as sturdy as the blowbacks and its lock is unnecessary with these low-powered cartridges.

"What caliber is my Luger?" Open the breech and look inside the chamber. If it is designed to take a bottle-necked cartridge, the caliber is 7.65 mm. Parabellum. Cartridges are made for this arm in the United States under the name of .30 Luger. If the chamber is not throated for a bottleneck, the

Typical German Mauser military model. Figure "9" on the grip indicates that this model uses the 9 mm. Parabellum cartridge. Mausers were also made to use 7.63 mm. Mauser and 9 mm. Mauser Special cartridges.

pistol is 9 mm. Parabellum (or Pistole '08, as the German Army called it) and will take the American 9 mm. Luger cartridge, either round-nosed or truncated-nose bullet.

"How good is my Luger?" To begin with, the head space and general condition should be checked by a reliable gunsmith unless you know the history of the pistol. The Luger can be recognized at once by its rising-toggle-joint lock design. So many returning soldiers and so many writers are confusing the Luger with other pistols that a picture of a sample Luger is printed herewith. If the pistol does not have knurled knobs to the rear of the breech which are drawn back and up to open the action, *it is not a Luger.* Remember, too, that the name Luger never appears on the pistol (with the sole exception of the few .45 caliber Lugers made for U. S. test in 1907 and never commercially marketed).

If your Luger bears the the DWM monogram and the numbers of the parts are identical, the pistol was made between 1903 and 1918 by *Deutche Waffen und Munitionsfabriken* and is of the finest materials and workmanship. If it has an eagle over the firing chamber it was manufactured for the American trade; if a Swiss cross, it was made for the Swiss Army; if a Bulgarian lion, it was produced for the Bulgarians. If there is no stamp over the firing chamber, the DWM Luger was made for European or South American or Chinese markets. An M and a Crown on the action indicates a Luger made for the German Navy (*Marinen*). Lugers without the DWM monogram but with a date 1914, 1915, 1916, 1917, or 1918 stamped over the firing chamber are Lugers made or assembled at arsenals during World War I. Some of these may bear the name of the principal arsenal—Erfurt. Such arms are reliable if the numbers of all the parts check. If the numbers do not check, you may have a weapon assembled from spare parts; and German tolerances required more hand fitting than U. S. standards call for. Such arms may not be reliable. Should your Luger bear the name Vickers on the action, it was made after the last war by the British for the Dutch and was probably taken from them by the Germans at the opening of World War II.

Lugers bearing the trademarked name Mauser on the action are also of the very finest quality. These are pistols made by Mauser at Oberndorf with the original Luger machinery acquired when Mauser absorbed DWM. These pistols were made in the 1930's. Lugers bearing German proof marks and dates over the firing chamber (from 1936 to 1942) or the name Erfurt are wartime productions of the German arsenals.

To prevent any outsider from knowing exact production, the German Army changed the series numbers on Lugers regularly. The last two digits of the pistol number were stamped on each major part as it was fitted and assembled. Checking these numbers will tell at once if you have an originally assembled pistol.

"Is my P-38 a mass-production Luger?" No. The P-38 is the official German War Department designation for the entirely new pistol designed by Walther and marketed by that firm in 1936. The only thing it has in common with the Luger is that both use the same ammunition. The Walther P-38 was officially adopted as the German service pistol in 1938 and was intended eventually to replace the Luger. It has a unique locking system, a double-action trigger, and a special and comprehensive safety system. This weapon has been fully pictured and described in recent issues of THE RIFLEMAN. (January, 1944; May, 1945.) It is an ironical fact that in 1940 our own and the British intelligence services knew so little about this unique arm that handbooks issued on enemy weapons gave little data about it and were illustrated with crude line drawings; this in spite of the fact that Stoeger, the American importer for Walther before the war, had sold the pistol in this country and his 1936 catalog gave an entire page of photographs and data concerning it. While test weapons were made in calibers .38 ACP and .45 ACP, this arm was never made on a production basis except in caliber 9 mm. Parabellum, Pistole '08. American 9mm. Luger ammunition is used in it.

If your pistol is of the type of the P-38 but is marked "9 mm. Mod. HP" and carries the Walther name, it is the first commercial issue. The HP means *Heeres Pistole*—Army Pistol. If it is the same except that the Model is 38, it is one made by Walther after official adoption. If it bears just the stamp P-38, it may have been made in a German arsenal.

Walther also made these pistols "hammerless;" that is to say, with the hammer cut down and fully enclosed by the slide exactly as in the case of the Colt .32 Automatic.

The last great development in this line was the introduction of cast Duralumin slides and receivers. These lightweight pistols were easily and cheaply made and their introduction is worthy of considerable study on the part of our manufacturers.

"What caliber is my Mauser locked-breech pistol?" If it has a figure 9 carved on the stocks, it shoots the 9 mm. Luger cartridge and is probably one of the pistols hidden away by the Germans at the close of World War I. If not, pull back the bolt and look inside the breech. If it is chambered for a bottle-necked cartridge, it takes the 7.63 mm. Mauser. That cartridge is made in this country under the name of .30 Mauser Automatic Pistol. If it takes a standard parallel-sided case, you are probably out of luck. Such a pistol is chambered for the 9 mm. Mauser Special cartridge which was never popular here. It is doubtful if the demand in the U. S. will ever make it profitable for a manufacturer to produce it here. Note that in both Luger and Military Mauser pistols, there is very little difference in these arms of different caliber except in the boring of the barrel and the spring tension.

"What American ammunition can be used in my Belgian Browning Hi-Power locked-breech pistol?" The standard 9 mm. Luger. This weapon was valued by German SS units because of its reliability and magazine capacity. With chamber loaded and magazine filled it holds fourteen cartridges. This arm has been fully described and pictured in THE RIFLEMAN. (November, 1944; May, 1945.) It resembles our .45 Colt Auto externally but does not have a grip safety. It is of superior design.

"Where was my FB pistol made?" This arm is a modified form of the Belgian Browning just described. It, too, has been covered in THE RIFLEMAN. (November, 1944.) It is a Polish pistol made at Radom Arsenal and was widely used by the Germans since it, too, used the standard German pistol cartridge. The magazine capacity is only seven cartridges and the pistol has a grip safety. If you are used to the .45 Colt Auto, you will probably feel from the appearance of the pins in the Radom that you are missing a thumb safety. Actually, this arm was designed *without* the Colt thumb safety. This will handle American 9 mm. Luger cartridges.

"I have a Llama and a Star pistol which came from Germany. What about them?" These are Spanish modifications of the .45 Colt Government Auto. They may be chambered for 7.63 mm. (.30) Mauser, 9 mm. Parabellum (Luger), .38 Colt Automatic Pistol, 9 mm. Bayard Long (not generally obtainable in the U. S.), or .45 ACP cartridges. The caliber will usually be found stamped on the slide. At best, they are poor imitations of the Colt and usually are sloppily fitted. Not recommended.

"What about my MAS 7.65 mm.?" Just another wall piece.

This interesting modification of our own service pistol was chambered for a freak bottle-necked cartridge and will not use the regular .32 ACP. Ammunition is made only in France and has little, if anything, to recommend it anyway.

"I have a Colt-type locked-breech pistol with a star and the letters CCGP on the stocks. What cartridge will it take?" This arm has been fully pictured and described in THE RIFLEMAN. (January, 1944; June, 1944.) It is the Russian Tokarev, caliber 7.62 mm. Russian. This pistol will handle the German 7.63 mm. Mauser Automatic Pistol cartridge (.30 Mauser). The letters are Cyrillic for USSR. Several divisions of Russian troops fought with the Germans.

"My pistol somewhat resembles the Luger, but the bolt travels straight back as in the Mauser Military. What is it?" An Italian Glisenti. The Germans in Northern Italy used much Italian equipment to save transport. While this arm will chamber the 9 mm. Luger cartridge, the difference between the standard German and the Italian loads is so great that it is unsafe to shoot regular 9 mm. Luger cartridges in this arm. The construction is generally weak. Better make a wall decoration out of this item unless you want to go to the trouble of cutting the powder charge of the Luger cartridge at least 25 per cent.

"I have two Czech pistols with revolving barrel locks. One is single action, the other double action. What ammunition will they take?" These are well made of excellent materials. They will handle the .380 Colt Automatic Pistol cartridges.

"What about my 9 mm. Steyr Hahn pistol?" Another wall piece. This ammunition is a special 9 mm. cartridge not manufactured here.

"What about revolvers?" Belgian Bayards made for American cartridges are good imitations of Smith & Wessons. German Arminius (Pickerts) are good in their class—about the same as Harrington & Richardson. German Loewe revolvers are good imitations of early Smith & Wessons. All other types are either made for hard-to-get cartridges (as Russian, French, or Swiss Service) or are useless or downright dangerous. ♦ ♦ ♦

Voluntary Range Practice

IN A RECENT ISSUE *of The Infantry Journal, an article appeared concerning the total lack of shooting facilities on the ordinary Army post, except for the regular range, which is usable only on official scheduled occasions and when a training allowance of ammunition is available. The lament of the writer of this article was that the Army, despite the fact that it makes much talk of marksmanship, does little to encourage the soldier to improve his skill on his own time.*

The answer to this has been a source of wonder to me for the last fifteen years. The Army, as a class, does less shooting ordinarily than civilians, and I believe the war has proved that that is an unfortunately small amount.

Just why the use of a small-bore range of only fifty feet in length, at the rate of about one per regiment, would not be a practical thing is a question that no one has been able to answer with any degree of satisfaction. The idea seems to be too radical to meet with official approval. My notion would be to have the range indoors where it could be used in all kinds of weather and light conditions, and in particular to be in operation after supper and on Sunday afternoons when men are at loose ends for something to do for a few hours. As the situation now is, a man goes to town or the movies or else shoots crap on a blanket on the barracks floor, to no great advantage to himself or anyone else. Where would the ammunition come from? Sell it in the PX, at below commercial prices. Plenty of soldiers will spend their own funds for it.

Years ago we were told that most European armies had a low standard of rifle marksmanship due to inferior weapons, lack of facilities for training, and an almost total absence of actual range practice. We Americans were said to be so much better as rifleshots that there was simply no comparison. Our small arms are better, but not so much better; and observation of various European army installations has shown that range facilities do *exist. It is a foregone conclusion that they were and are used for their intended purpose.*

The rifle range on an American Army post, while frequently elaborate, is set up for long-range work and is usually an hour's truck ride or half a day's march from the barracks area. Each outfit gets its brief time for practice and one for qualification, and that is about the end of it until next year or the next war.

Now, your French range won't be a 500-yard affair in most cases, although I have seen a few of them, but it will be a well walled-in affair, perhaps fifty meters long and it is located right in back of the barracks, about five minutes march away at the most, and it certainly is handy. French military setups in Africa frequently had these ranges, also.

Ridicule the Italians if you will, but they had a subcaliber arrangement for their 6.5 mm. rifle that worked quite well at short ranges, was quite practical for indoor gallery work, and seems to have been much used. And they have a rifle range south of Rome that has no equal in the United States. Camp Perry (as it existed in 1940) is primitive in comparison.

I have not seen them myself, but I am told by people who have seen a few German military posts that there are rifle ranges close to the barracks; and we were forced to admit that plenty of Kraut soldiers were damnably efficient with their rifles.

All this does not mean that we Yanks can't shoot. But quite a lot of us would be much better with voluntary practice. The fact that some people like to shoot for sport and pleasure is totally unrecognized by the Army Special Services. Nothing is ever done for the man who likes target shooting, but who doesn't give a damn about basketball, mouth-organ playing, or bridge. Just which sport is the most conducive to military efficiency is too obvious for comment.

Overseas forces in combat zones often find time and facilities for football, basketball, boxing, and other sports, but you will search the sports page of the Stars and Stripes *in vain for reports on rifle competition held by a division back in a rest area. I remember seeing just one such a report of a field firing competition held on the old Anzio Beachhead. The prize was $50.00 and a week's trip to Naples. It was won by a Scot rifleman. The nearest American's score wasn't even close.*

Another fact is that after three years of war our telescope-sighted snipers' rifles are still only makeshifts.

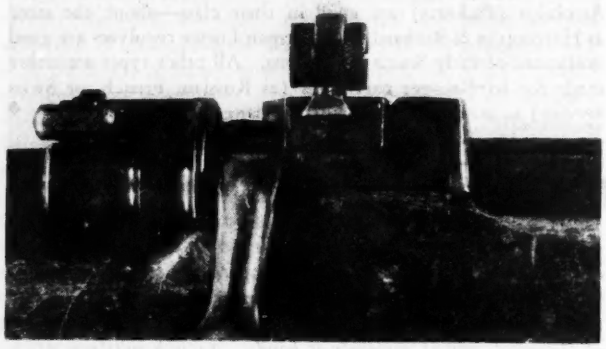
Maybe the publicity angle is to blame. Football or track may fill a stadium, but even the National Matches attracted only a small crowd.

Captain, Field Artillery.

(From a letter to the editor of *The Infantry Journal.*)

Aperture Rear Sight For Mauser-Type Rifles

By MATT. GRANT



AN APERTURE SIGHT offers better aim at game than an open sight, but most adjustable aperture sights are so flimsy and easily bent, or so slack in the moving parts, that the optical advantages of the aperture are wasted because the sight is so easily thrown out of adjustment.

What are the essentials of a sporting aperture rear sight? 1. The aperture should be as close to the eye as possible, always bearing in mind the danger during recoil. 2. Adjustment should be provided for both elevation and windage. 3. The adjustments should be tool operated (so as to be proof against friend's fiddling); they should also be secure against accidental shifting even by a severe bump. 4. The whole should be so strong that it will stand any amount of rough handling, such as it gets in the hills. 5. Divisions of adjustments should be marked in minutes of angle (not some meaningless measurement). 6. There should be a choice of small and large apertures, so as to suit the strongly varying lights met stalking.

The sight described meets these specifications.

SIGHT BASE: As may be seen in the photograph, the sight is dovetailed into a base, which is attached to the bridge of the action, which is the nearest solid part of the Mauser to the eye.

Some Mausers already have a flat matted base at this point. They merely need to have the dovetail cut in them. The round type of bridge needs the block. There is not enough metal to hold the sight without the block, and the great strength of this sight is wasted if it is not fastened on properly.

The dovetail may be filed to fit the bottom of the "sight frame," after that part is made. The best hand fitting, however, is to make a male-toothed drift, or broach, to the dimensions of the dovetail, and caseharden it. File a like female groove in a piece of three-quarter-inch-square mild steel almost to size, and then finish by driving the hardened broach through it. Caseharden this, also. This latter piece is used to finally finish the "sight frame" foot by driving the foot through it. The groove is rough filed in the sight base, after it is attached to the rifle, and the broach driven through to finish it. The result is a mated groove and dovetail. The fit required is so that the "sight frame" will tap easily across when hit with a sheath knife handle. The lock screw fixes it firm after adjustment.

P. 14 and Model 17 .300 caliber require that the standard rear sight wings, etc., be ground off, leaving a flat base in which the groove is cut (incidentally, making these rifle actions both lighter and neater).

A single register or index mark is cut one-eighth inch from the left front end of the dovetail groove. This indexes the center mark of a series of five which will later be cut on the "sight frame" base as windage indicators. If available, finish the top of the base block with a matting file. The block is fitted to the curved action with Prussian blue and filing, and screwed ($\frac{3}{32}$ screws) and sweated in place. The best machined flat to use (on Mausers), as a reference when locating the block to square it with the action, is the magazine well at the point where the thumb slot cuts the side wall.

THE SIGHT FRAME: Also mild steel, cut from a solid piece three-eighths by one and one-quarter. Most of the roughing to

LETTER FROM THE AUTHOR

Editor: *Christchurch, New Zealand.*

It will be no news to you that your journal is a good one, but perhaps you will be interested to learn that riflemen in this country consider it to be the most interesting and authentic shooting magazine published in the English language.

The only authentic information available in published form about U. S., Allied, or enemy weapons in this country is that published in THE AMERICAN RIFLEMAN. Our information, even on British weapons, comes from you! I am, in an humble way, a sort of Fred Ness to our local sporting journal, "The Outdoor," and I often, with due acknowledgment, draw from THE RIFLEMAN.

Conditions here are vastly different from those in most of the U. S. and Canada. The climate, for instance, is milder. Even in the dead of winter, in the most mountainous districts, the temperature rarely drops to zero. Game is so plentiful that the stories we read of long treks in the Rockies after sheep and goats are hardly credible. Here, we can shoot Tahr (a large Himalayan goat), Chamois, or Red Deer, without traveling more than a mile from a road or a hostelry. And we don't have to be satisfied with one or two. Frequently as many as twenty are bagged by one rifle in a short day.

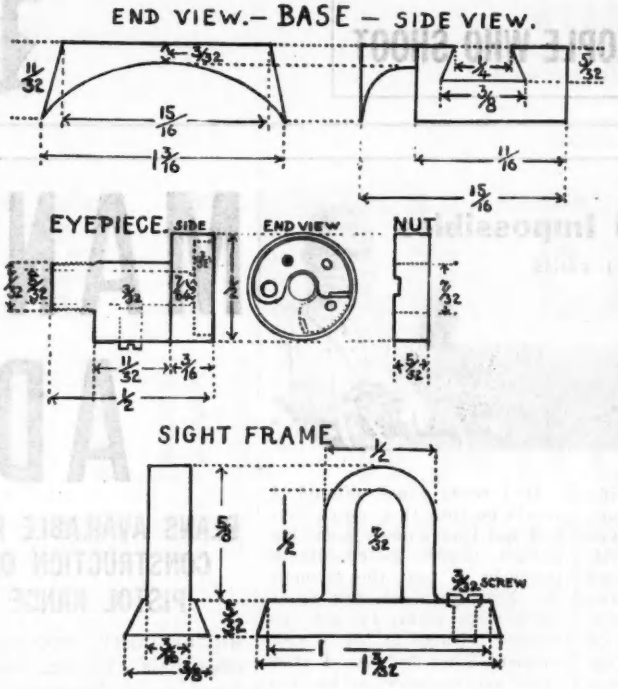
The game animals, which were all imported in the early days of settlement, have multiplied so fast that they are considered pests and there are no closed seasons, licenses, fees, or restrictions of any kind. Sport is, in fact, in the state that it was in the U. S. during your frontier days, free for all and plenty of it.

For the rifle there are, in large numbers, Red Deer or Scottish Deer, Tahr, Chamois, goats, pigs, and wild cattle. In lesser numbers, but still plentiful, are elk, whitetails, fallow deer, and Japanese deer. There are a few moose, but the latter are scarce. For the small-bore rifle and for the shotgun there are millions of rabbits (cottontails) and hares, opossums, and some Wallaby (small kangaroos). Under closed season but available under license are ducks of several breeds, black swan, grouse, quail, Pukaki, Chukkor, and pheasant; and, of course, we have your pet, the crow.

Of course, with so much unrestricted game, a keen shooter has the opportunity of shooting many more animals than can his counterpart in the States. Deerhides bring a high price and so there are many market hunters who have a very wide experience, and who have each killed many *thousands* of deer. I have done some market hunting myself and so should know why bullets kill deer. Some years ago I wrote an article on The Killing Power of Bullets. It may interest you to know that my findings were almost in complete agreement with Baden Powell's; in fact, for many wound effects we even used the same words!—*Matt. B. Grant.*

shape can be done on a power emery wheel. The 7/32-by-1/2-inch vertical slot must be truly vertical with the foot of the "sight frame," and must be very carefully filed to fit a 7/32-inch test piece without any play, but just to slide easily. Slackness here would result in a change of windage when elevation is changed.

The 3/32-inch lock screw should be casehardened, so that after many adjustments the slot will not become ragged or the locking tip upset. This screw should protrude about 1/32 inch when screwed right home, to give firm locking.



THE EYEPIECE: Is turned from one-half-inch round. Though not shown in sketch, it has flat sides on the part with a length of 11/32 inch, and is exactly 7/32 inch thick, so as to slide without shake in the 7/32-inch vertical slot of the "sight frame." The 3/32-inch headless screw shown should be flush at each end when right home. It should be tapped so as to turn stiffly, and should be casehardened.

The hole through the length of the body of the "eyepiece" is not of a single diameter. It is bored first with a 7/64-inch drill, and this is followed with 5/32-inch drill; but a thin section of 7/64-inch cut is left. This gives clearer sighting than a plain hole. The thread on the outside of the 7/32-inch end should be a fine one. The side of the eyepiece disc towards the eye recessed 3/32 inch deep, inside the cup thus formed, works a thin steel plate which carries the small aperture. This is made from a piece of heavy clock spring. Anneal a piece of spring and fit a half-circle piece neatly into the cup. On a line with the center, bore a small hole right through the eyecup and tap to take a small screw about 1/16-inch diameter. Bore a similar hole in the spring plate and screw it into place. Now file with a rattail file till the large aperture hole is clear.

Bend up a small tip on the right-hand end to form a tip which can be caught by the fingernail when shifting from large to small aperture. This tip must be low enough to be below the raised edge of the eyecup, for projection. Just below this tip, bore a shallow 1/16-inch hole, pull the plate down as far as it will go, checking that it completely covers the big aperture. While in this position, punch, with a small round-nosed punch, exactly on top of the shallow 1/16-inch hole. This will form a dent which will accurately locate the plate again after shifting apertures. While still located by this dent, feed a 5/64-inch drill through the body of the "eye-piece," and drill the spring plate till a "bubble" shows that it is almost through; then finish with a 7/16-inch drill. This gives a sharp, thin-edged 1/16-inch centered hole for the small aperture.

Next, move the plate up and down several times so the dent will scribe its path on the face of the eyecup. Take out the 1/16-inch screw and drill another 1/16-inch shallow hole at the end of this track, to engage the dent when plate has uncovered the large aperture.

Bore the thread out of the 1/16-inch hole and countersink the end farthest from the spring plate. Carefully fit a headed steel rivet to this hole and also to the spring plate, as there must be no wobble on the pivot of the spring plate. Bend the plate slightly to give spring pressure to the dent. Rivet the countersunk end of the pin and file the end flush with the left-hand side of the eyepiece. You now have a change from large to small apertures with a firm click at each position.

This method must be followed. Any attempt at "guess" location of the holes will result in a change of sight line with change of aperture.

THE NUT: This screws onto the eyepiece and locks it onto the "sight frame." Turned from one-half-inch round steel, knurled, slotted for a driver, and tapped 7/32 inch. It should be casehardened to stand the wear of many adjustments.

The eyepiece may also be knurled, mainly to match the nut; but, if it is, file off the knurling on the left-hand side and make an "index" mark across the rim. Assemble all parts. With the "eyepiece" down as far as it will go, make a mark opposite the index on the "sight frame." Below this 1/32 of an inch, make another mark. Make three other such marks, 1/32 inch apart, above the index. A sharp, small chisel is the best way to make clean, deep marks. This 1/32-inch division equals four minutes on a twenty-four-inch-barreled Mauser.

File the front sight to get the elevation right, while targeting, when on the second division. Then you have four minutes down and twelve minutes up for later adjustment. Similarly, cut windage marks 1/32 inch apart on each side of a Zero, which is found by targeting. Marks closer than 1/32 inch cannot be read easily, so it is no good making them. This marking should be done before casehardening the "sight frame."

It will be seen that a little light leaks below the sight when it is in the uppermost position. This can be stopped by soldering a piece of sheet iron across the bottom of the 7/32-inch slot in the "sight frame," but let it in flush. (Not shown.)

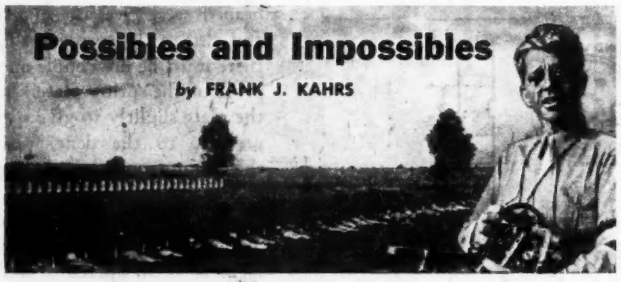
Finally, blue all parts. Don't use a high-heat blue, or you will soften the casehardened parts. Casehardening does not blue readily by most processes; but casehardening should be done, nevertheless, because the sight stands wear better. In fact, one of the main advantages of this sight is that the locking devices do not get marred by many adjustments.

When you have assembled this sight on the rifle, you will see at a glance how strong and neat it is. You can actually drop the rifle on a rock, banging all its weight on the sight. There will be no bend or shift. Nor will there ever be a mark on its casehardened surfaces. ♦ ♦ ♦

A PAPER FOR PEOPLE WHO SHOOT

Rifle

VOL. 8, NO. 10 BRIDGEPORT, CONN., OCT.



THERE was a time in the rifle shooting history of this country when offhand shooting was very popular. In fact, you seldom heard of or saw anyone shooting prone. Most of the shooting was done by Schuetzen clubs in various parts of the country, and they shot regularly, too. And then there were rifle clubs like the old Walnut Hill, Massachusetts, bunch where they had a variety of shooting and testing of various type loads, guns and whatnot and there was much rest shooting, too.

My recollection of this goes back to the beginning of the present century, although there was considerable shooting of this kind in the early '90's of the last century. World War I stepped in to interfere with this type of shooting. The Schuetzen clubs naturally folded up and thus offhand shooting declined almost to the vanishing point. It has since been coming back slowly. I'm still thinking of the non-military type of offhand shooting.

The oldtimers, you know, made a slugging match out of it by firing consecutively 50 or 100 shots. That was the real test, let me tell you, of marksmanship, courage, and stamina.

* * *

I was glad to see the other day a notice that the 28th Annual American Small Bore Outdoor Record Matches would be held again in August and September. These are postal matches, you know, and consist of a 50-shot match at 50 and another one at 100 yards. And then there is a 10-shot King Match at 50 and 100 yards. Then 10 high men east of the Mississippi will match their scores against 10 men west of the Mississippi for the 50-shot 100-yard championship.

If I could shoot offhand, I would go into this match myself, but I have never been able to get things to coordinate properly so that the moment the cross-hairs or the front sight were right, I'd get the trigger released at the precise moment I wanted to. I even tried set triggers on the old Schuetzen rifles and I always touched them off before I was ready, but I still think it's a he man's sport.

* * *

I had a letter the other day from an old friend out in Eureka, California, who used to shoot many, many years ago at Walnut Hill, Massachusetts. He states that most of the members are young fellows who know nothing of the back shooter boys of old. He says that one of their members, who is range-master and scorer, is the only living member of the club who shot in Eureka 50 years ago or more in the old One Candle Club. At present, he is 83 and has given up trying to shoot any more. He's old enough to remember the International Matches that were held back in the late '70's and was much interested in the Currier & Ives pictures.

They have two targets out at 200 yards on the Eureka range for the offhand shooting with the old black powder rifles and use the clock system for denoting the value of the shots—one alongside each target. They brought this idea from Walnut Hill. The club holds a shoot once a month. There are about 40 members, half of whom are really active.

It's nice to know that some of the old-timers are still enjoying their favorite sport, so reminiscent of the old black powder days.

MANY RIFE ADDITION

PLANS AVAILABLE FOR CONSTRUCTION OF PISTOL RANGE

BRIDGEPORT, CONN., October, 1945. The war has produced many fine pistol shots and your club should be considering this potential as a means of adding new blood to your membership ranks.

Plans are available for the construction of a range from several sources. Such plans can be used as a basis for planning a range layout. The NRA has an excellent set of blue prints available to any NRA club, at a nominal price. Or, if you wish, Remington has a set of plans, free for the asking. Address: Law Enforcement Officers Section, Remington Arms Company, Inc., Bridgeport 2, Connecticut.

PROMOTING PISTOL SHOOTING REQUIRES LIVE-WIRE CHAIRMAN

CENTERVILLE, U.S.A., O tober, 1945. With the wa end, many clubs are materia ing their plans to add a pis range to their present rifle f cilities. Like the promotion any other project or eve within a shooting club, promo ing pistol shooting should b made the responsibility of committee, with an alert, har working chairman. Here's job that some member of yo club could take to heart a really put your club on the r ord as an active, energe handgun outfit. Some of th best clubs in the country a the ones with a well-balanc membership . . . rifle shooter pistol shooters, men and wom alike.

AROUND OUR CLUB . . . . . A WAC Comes Back

emington News

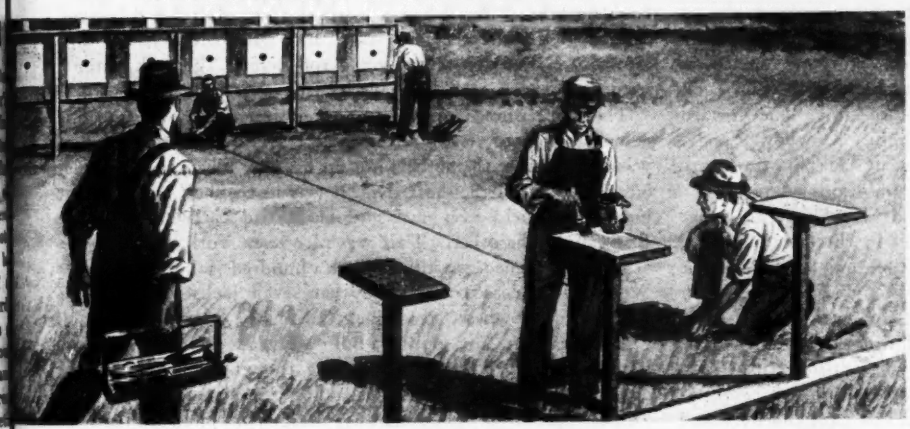
T, CONN., OCTOBER, 1945

First Class Reading Matter for Rifle Shooters

WEATHER:
LOOK FOR COOL HANDGUN SHOOTERS MAKING HOT SCORES

FE CLUBS PLAN EARLY ON OF PISTOL RANGES

96% OF RETURNING SERVICEMEN INTERESTED IN PISTOL SHOOTING



Aggressive clubs are adding pistol ranges to their facilities in order to accommodate the many new pistol shooters that the war has developed. Construction of a pistol range is easy for an already established range.

BRIDGEPORT, CONN., October, 1945. The popularity of pistol shooting has taken a definite upward surge, and many clubs throughout the country are capitalizing on the trend to increase their membership by installing pistol ranges.

One of the greatest contributing factors to the sudden interest in pistol shooting is the war. Civilian defense organizations have given their members instruction in the use of handguns. The number of industrial guard teams has doubled and tripled. Thousands of service men and women learned to use sidearms, and they know how to use them. One survey indicated that 46 per cent of the returning veterans are interested in continuing their pistol shooting.

Of special note is the interest of the returning servicewomen in handgun shooting. Rifle clubs have always been looking for a way to get the women folk out to shoot. Hundreds of young women have been given handgun instruction in the WACS, WAVES and SPARS, and they have developed a lot of good shots. Many of these girls will undoubtedly want to continue to shoot, and the clubs with pistol ranges will be hearing from them.

Even with a shortage of materials, constructing a pistol range is a relatively simple matter. There is enough scrap material around to do a good job, and with careful planning a few of the club handymen could build a very satisfactory range in a short time.

EMINGTON LABORATORIES ASSURE ACCURATE AMMUNITION

RIDGEPORT, CONN., October, 1945. Ammunition at comes off the Remington duction line is carefully pected and tested in one the finest laboratories in country. Take Target-ster ammunition, for ex-ple; these cartridges are idly tested and inspected raw materials to fin-d product, so the result is pinnacle of accuracy and endability of perform-e. You can bet your bot-dollar that whenever you eze on a Targetmaster ridge, everything possi-has been done to make bullet hit where you hold. Perfect scores can only be shot with perfect ammunition. When ammunition is available you can put your trust in Remington Targetmaster.

Targetmaster is Reg. U. S. Pat. Off., by Remington Arms Co., Inc., Bridgeport 2, Conn.

DESERT JACKS ARE NOT SO TOUGH

By F. C. NESS

HAVE YOU EVER REVERSED your attitude? Ideas on shooting matters die hard, but sometimes they have to go when contrary experience becomes too persuasive.

For example, I am categorically opposed to shooting game, even certain species of small game, with the popular .22 rim fire. I've done it, and will do it, occasionally, but am "agin it" in principle and prefer not to shoot anything tougher than a cottontail with the lowly "Long Rifle."

Furthermore, Keith, or some other accredited outdoorsman, wrote convincingly about the tenacity (to life) of the mule-eared rabbits referred to commonly as "jacks." That writer claimed that his western jacks required considerable killing and that the well-tried .220 Swift proved none too effective on these long-eared varmints.

I swallowed the bait and assumed that Western environment made the jacks grow tougher than my familiar Minnesota variety. That state of affairs prevailed when I reached El Paso.

There, Bill Weaver grew tired of showing me his telescope sight factory and his home, and decided to show me his jack-infested ranch about 125 miles northwest into New Mexico, in the foothills of the Black Mountain range. He picked up Dick Shaw, who sells sporting goods, and we drove out toward Deming and Silver City in the moonlight. Cowboy Woody, Bill's ranch manager, put us up and went jack hunting with us the next morning. So did Brit, the ambitious mongrel.

Bill had a Savage .22 Long Rifle and Winchester 12 gauge pump; both scope equipped, of course. In the latter, he used No. 6 chilled. For a while, I watched Bill and Dick shoot the .22 and was duly amazed to see those "tough" jacks keel over so docilely at all ranges upon meeting up with that 40-grain capsule of lead. I tried it a couple of times myself, with the same astonishing results. Incredulity gradually turned to conviction, and the proof piled up as the day wore on.

In stepping out of the car, Bill dropped the .22, and I claimed she was not shooting where she looked. Bill knew his Weaver telescope was better than that and remained obdurate until he became sufficiently annoyed by his own unaccountable misses and tried her on a gate board about sixty yards off. Yep! She was way out, high and right. That soured me on the rifle, and I grabbed the shotgun before anyone could suggest matching straws for it.

The first jack got too far away in the concealing chaparral, and I fired only for fun. However, that fool jack folded up pronto when tickled between the ribs by those tiny No. 6 pellets. It was incredible! But it happened again on the following jack, and on the next!! I revised my opinion right there about the alleged toughness of these Western jacks. We did eventually cripple a few, but all died quickly, including those reached too soon by the ever-alert Brit, that stout curly-haired pup.

Brit "pointed" one, foreleg and tail in approved setter attitude, in a greasewood bush, and I walked up hopefully. But Brit was on him at once and so close to the jack's heels I couldn't fire. Later, I had a broadside shot, after I had become familiar with the shotgun scope and with Brit's habits and tactics. I fired with the dog a rod behind the jack, and it seemed that dog and shot hit the jack together.

The scope proved usable even after sundown, and I had one demonstration of its practical speed. I crippled one, and Brit was after him with me backing up his play when another took off for the top of the short rise. It was a snap shot, but I caught him in the field very fast and he turned cartwheels just as Brit caught the other. That was nice team work.

In all, it seemed, we killed about a hundred jacks, and rancher Woody was pleased. He said that seven jacks would eat as much Indian wheat, tea vine, California celery, and black grama grass at any one of Bill Weaver's prize white-faced Herefords. That was a comforting thought, and it removed any last trace of regret about ending the careers of so many "tough" jacks so ignominiously with such picayune bits of lead. ♦ ♦ ♦

Semiautomatic as a Sporter

(*Continued from page* 20)

utilizes a clip accommodating either twelve or twenty of these cartridges. The Reising catalogue claims that "Because of the increased velocity incident to the longer barrel of the Semiautomatic Rifle, the maximum effective range of this Model (against personnel) is extended to 400 yards." It goes on to say that "Accuracy is high within the stated maximum effective range for this type of weapon since when the gun is loaded and ready to fire, the round to be fired is chambered, the bolt is in the locked position, and the action is at rest during the period of sighting and aiming the weapon; depressing the trigger results only in the motion of the hammer and the firing pin." That is OK. It simply means that this model fires from a closed bolt, unlike other tommy guns which usually fire from an open bolt.

But the design of this weapon does not increase the inherent accuracy of the .45 Automatic Colt Pistol cartridge which at the extreme range given above is practically nil. The .45 ACP cartridge is still a pistol cartridge in spite of the eighteen-and-one-quarter-inch barrel. It certainly is not a game cartridge. The idea of this being a 400-yard weapon, especially with the pistol-type sights it has, is fantastic. The .45 ACP cartridge is a man-killer designed for close work only. If offered to a gullible public for hunting, this weapon is the best argument for anti-firearms legislation that could be conceived by or for the fanatics.

Is the semiautomatic action a sporting proposition? After all it's a matter of how it is designed and how we use it. If it handles a properly designed sporting cartridge of adequate power; if it is accurate at sporting ranges; if its action is dependable, it will be just as sporting a proposition as the guy in whose hands it finds itself. If he's a sportsman and a straight shooter, the gun will likewise be sporting and straight shooting. But in the hands of a chiseler any gun can be bad. ♦ ♦ ♦

Shipping "Liberated" Weapons Home

IF ONE MAY JUDGE from what he reads and from what he sees on trains and in railroad stations, the most popular pastime of overseas Yanks, next to hunting out Nips and Nazis, is and has been hunting out souvenirs to remember them by. The Yank seems especially fond of the weapons that have been shooting at him; that is, the small arms. With certain exceptions, these are legitimate loot for "liberation." And, except for those exceptions, these small arms may be acquired as personal property and brought or shipped home.

The Army and the Navy have adopted certain regulations regarding souvenirs taken by G.I. Joes on foreign battle grounds. The U. S. Post Office and the express companies will accept and transport those souvenirs subject to those regulations and to the provisions of the National Firearms Law. The U. S. Customs Service, subject to these limitations, passes these souvenirs duty-free up to a value of fifty-five dollars.

The Army and Navy regulations are liberal enough for all legitimate weapons. But apparently there has been some misunderstanding about them, irritated and augmented by the strict enforcement of local ordinances and restrictions. This has been accompanied by much publicity, some wise and a lot otherwise, on the dangers of the importation by servicemen of foreign weapons. Some of this publicity has gone to the hog-wild extreme of picturing every serviceman who brings in a souvenir weapon as a potential thug and gangster. It is true that there are very definite dangers in the importation by anyone, except in an official capacity, of weapons of the full-automatic type. The law takes care of this and no one else has any business with them. But much of this unfavorable publicity has been caused by a few unthinking Joes who have been so indiscreet as *to carry* these weapons, including semi-automatic pistols, and *to display* them *in public*.

Under absolute taboo by the Army and the Navy regulations are: (a) "live ammunition, explosives, or any item containing explosives; (b) inflammables of any nature; (c) firearms of the automatic type, such as machine guns, or any other type of gun in which a number of shots or bullets may be discharged with one continuous pull of the trigger; (d) items of which the value as trophies, as determined by the theater commander, is outweighed by their usefulness in the service or for research or training purposes in the theaters of operations, or elsewhere, or by their value as critical scrap material."

Full-automatic weapons are, of course, strictly forbidden by national firearms laws which also outlaw weapons with barrels less than eighteen inches in length. This includes all tommy guns and all other submachine guns. These may *not* be possessed by civilian or soldier except when the latter is so armed on official duty. These are military and police weapons only. Don't try to bring 'em in.

While many *trophies* may be mailed home, "the mailing of all firearms, or component parts, capable of being concealed on the person is prohibited." These weapons are defined by the U. S. Customs Service as weapons having a barrel length of less than eighteen inches from the breech to the tip of the muzzle. This over-all length "is not to include flash hiders, compensators, the receiver assembly, or related parts." However, the Post Office Department has a ruling regarding the size of the package they will accept which effectively prevents the shipment of *any other* firearms by mail. This is covered by Orders Numbers 21128 and 25132 of the Postmaster General and published in Postal Bulletins of April 30, 1943 and June 30, 1944. This reads, "Weight and Size. Except as hereinafter provided, no parcel shall be accepted for mailing to personnel of the Army, Navy, Marine Corps, or Coast Guard who are stationed overseas if it weighs more than five pounds, or exceeds fifteen inches in length, or thirty-six inches in length and girth combined." While this would seem to be a one-way regulation, the Post Office authorities assure us that it works both ways and the restrictions apply to packages being shipped *from* overseas *to this country* equally as well. We have studied the exceptions referred to and none of them apply to firearms. So, it would seem that *mailing* firearms is successfully frustrated by regulation. When properly cleared, however, they may be shipped by express.

War Department Circular No. 155, dated May 28, 1945 gives the following warning and instructions to service personnel:

"In view of the various laws, both Federal and State, pertaining to the transportation, registration, and ownership of firearms and other lethal weapons, it must be understood by service personnel and others that it may be necessary to register such firearms or other weapons with proper authorities and otherwise comply with Federal, State and local laws, depending on the locality in which these firearms or weapons are to be retained. Failure to register this type of equipment, which includes rifles, small arms, swords, bayonets, blackjacks, slingshots, billies, bludgeons, metal knuckles, and the like, may result in the confiscation by authorities of such items and also the prosecutions of the individuals in whose unauthorized possession such articles are found.

"When military personnel returning to the United States bring in trophies not prohibited above, each person must have a certificate in duplicate, signed by his superior commissioned officer, and bearing appropriate official theater stamp indicating that the bearer is officially authorized by the theater commander, under the provisions of this circular, to retain as his personal property the articles listed on the certificate. The signed duplicate certificate will be taken up by an officer of the port of embarkation (and a consolidated certificate accomplished) or by the Customs Bureau or military authorities at the port of debarkation. The original will be retained by the bearer.

"Parcels mailed from overseas which contain war trophies must also contain a certificate in duplicate, both copies signed by the sender's superior commissioned officer, and bearing appropriate official theater stamp indicating that the sender is officially authorized by the theater commander to mail the articles listed on the certificate. The Customs Bureau will take up the signed duplicate certificate and leave the signed original inside the parcel."

It would appear that while members of the Merchant Marine and U. S. civilians may be permitted to bring or ship certain trophies, certificates will *not* be issued to them permitting the retention as personal property of "any enemy military firearms." This, presumably, does not prevent the acquisition of enemy sporting or target weapons by these nationals.

Unauthorized weapons shipped or brought into the country will be confiscated and turned over to the Army. ♦ ♦ ♦

POWDER SMOKE: READERS COMMENTS THE NEWS DESK

WINCHESTER MODEL 95

Monroe, Washington.

Editor:

Re the article, "The African Winchester," by H. V. Stent, in your August issue. This article concerns the Model 95 Winchester and, while the Model 95 is my favorite rifle, I disagree with Mr. Stent as to the strength of that action.

I believe the action is OK in calibers other than .30-'06. My Model 95 caliber .30-'06, after several years service, began to push the primers out when fired, and to flash at the breech. The Winchester people put it in good condition and told me to use only Winchester or Western ammunition; that "there is ammunition available, made by others, that has pressures too high for this action."

I offer this as my own experience, which should interest owners of that model.

E. M. Richardson.

FATHER—

Editor:

Attached is a letter from my son in the service.

I have served in every capacity of our club for the past twenty-five years. I am now Vice-President and Chief Instructor of our club. I have spent the best part of my life teaching young men how to shoot a rifle "Uncle Sam's way." I have turned out several large schools of boys and men who were eligible for the draft.

When our job is finished over there, and our arms and ammunition are again available, I sincerely hope that every city, town and village in our country will be supplied with a rifle club sponsored by the NRA. It really pays dividends.

W. S. Tanksley.

—AND SON

Dear Dad:

We went on the range yesterday and I think you should be proud of your son. Out of a possible 150, I scored 149. We fired thirty rounds at seventy-five feet in two positions. The first was prone and then sitting; then prone again, Timed Fire.

I made a perfect score in prone both Slow and Timed Fire, and I only lost one point sitting.

Nobody made a perfect score and only one man tied with me for top score and he was a Marine.

I am certainly glad that I took my training at the rifle club with you because this was easy compared with the way you shoot. I am very proud of you, Dad, because you are a fine and competent instructor, and I am sure all of the boys who took their basic training under you appreciate your help and feel that you certainly have done a great job in training young boys how to shoot a rifle.

Bobby.

WHY NOT?

Paterson, New Jersey.

Editor:

Have you ever thrilled at the sight of a Navy man "saluting the bridge?" Have you ever felt that tingle in your spine as military men snap to a salute at Revielle, or when the Flag goes by?

Old Glory flies, too, over each of our ranges. Why not make it a custom for each man, as he reaches the firing line—whether in competition or for practice, whenever the flag is flying—to face that flag and salute it?

Pasquale Morone.

NEWS FROM THE PHILIPPINES

APO 501, San Francisco.

Editor:

Just a line or two to let our friends there know about us here in the Islands, and about The National Rifle and Pistol Association of the Philippines.

Looking at the events of the three past years, we of the NRPA feel that our efforts in promoting target shooting have been justified and amply rewarded by subsequent events. The hundreds of ROTC boys who fought the Japs in Bataan and elsewhere got a great deal of their incentive from the tournaments we held, and I believe our national leaders are now more than ever convinced of the value of an association such as ours.

You might be interested in what happened to the NRPA, its officers, and members. Our president, former Representative Pedro Vera, was killed by the Japs with members of his family during the liberation of Manila. Our secretary, Vicente Manuel, was taken in by the Nip Military Police in 1942 and murdered in their torture chambers because he refused to reveal the hiding place of the club's armory. Several months before the Americans arrived, our club caretaker, Norberto Cruz and his son, were likewise killed by the Japs when they came across the cache of club guns and ammunition, hidden near his house at the target range. Lt. Ontoniel Gonzaga, one of the two Filipinos who went to the 1936 Berlin Olympics was killed while escaping after the fall of Bataan.

SUPPORT THIS ONE, TOO

VICTORY LOAN

Uncle Sam needs more bond dollars—to care for wounded men, to rehabilitate veterans, to terminate war contracts, to prevent inflation, to bring your men home, to support armies of occupation. So let's buy bonds—this time, to win the peace.

The rest, I'm mightly glad to say, came through safely by the grace of God and plenty of luck. Col. (now Associate Justice of the Supreme Court) Delfin Jaranilla and his son, Lt. Delfin Jaranilla, Jr., managed somehow to stay alive through Bataan, the death march, prison camp, and the holocaust that was Manila at the time it was liberated. The same thing holds for me.

Lts. Martin Gison (the other who went to the Berlin Olympics), Teddy Kalaw, and many others, also managed to stay alive somehow, in spite of the fact that we, of the Army, were marked men by the enemy. Towards the end they rounded up as many as they could and incarcerated them. They were never heard of again.

Of course, our civilian arms are all gone. Either they were turned in, confiscated, or buried. In the last case, the damp and the termites have put the arms out of commission—but the owners have the satisfaction of knowing the Nips never got them.

Looking at things from the bright side, I'd say we could still put up a pretty good team for the next National Championship at Camp Perry. It's useless to talk about it, I mean anything definite, until V-J day; but we're optimistic—and so we ask, when are the next Camp Perry shoots?

Capt. Carlos Quirino.

BOOBY TRAP WAS UNINTENTIONAL?

Marseille, France.

Editor:

In the June, 1945, issue of your fine periodical, you published a short article titled, "Long-Distance Booby Trap?" *(Concerning a German Walther P38 service pistol, souvenir from the battle front, which burst on firing because the locking assembly, which holds the barrel and slide locked together during the first quarter inch of backward travel, was missing.—Ed.)*

We, in this Small Arms Section of — Ordnance Company, believe that the pistol referred to was probably not booby trapped. The Krauts did plant such items everywhere, as we have good reason to know, since we have seen and helped deactivate several weapons ourselves. But we think this particular pistol was merely one that had been assembled for barter or sale by persons (GI's either of Combat forces or of Service units following close on the heels of the Infantry and Armored) who simply weren't familiar with the proper assembly or functioning of the weapon.

Yankee ingenuity and the desire for cold cash (as well as the desire to forestall the possibility that weapons left behind might later be turned against us) have resulted in the assembly or "repair" by inexperienced "armorers" of many weapons which have sold to gullible customers in the rear echelons at ridiculous prices. Barnum said, "There's one born every minute," and I think he had the Air Corps and A.D.S.E.C. in mind!

Weapons were assembled with parts missing, and some of the boys showed remarkable mechanical skill in creating missing parts (or a reasonable facsimile thereof) out of raw metal. They were darned clever; they'd fix the arm so it would function; but whether it would really be safely usable would depend on the workmanship and on just what raw materials happened to be available.

Like you, we advise anyone purchasing a foreign military weapon to have it checked first by someone who knows. No foreign piece is worth the loss of an eye, a hand, or even a finger!

T/Sgt. Donald C. Green.

AIR GUNS FOR PRACTICE

Oak Hill, West Virginia.

Editor:

Some months ago I read with great interest Ed McGivern's article on Fast and Fancy Shooting. Having the desire to be a good quick shooter, I decided to practice along methods pointed out in this article.

Ammunition being hard to obtain, I turned to my Crossman .22 air rifle and Benjamin air pistol for practice.

After a few weeks of quick-pointing practice, I started shooting at half-gallon tin cans in the air. The air guns, I found, have a distinctive advantage, as the pellets can be seen above the horizon and the shooter can see where his shots are going with reference to the target. The guns being single shot, I found that simulating a second and third shot on the falling object greatly increased my score.

During the past three months I have fired 2,000 or 3,000 pellets at objects thrown into the air, constantly reducing the size of the objects from half-gallon tin cans down to a fifty-cent piece. My average on ordinary milk cans is now eight hits out of ten.

So, I say to the average shooter who desires to become a good offhand shot—turn to the air guns, as ammunition is cheap and available.

Byron L. Slater.

WASHINGTON REPORT
By Ernest McIver

Look for more and better rifles, shotguns and revolvers during the next six months. The lid is coming off, slowly, but surely. The government order restricting the sale of firearms has been repealed. This means that now even .38 revolvers and 12 gauge shotguns will be made available without priority. Dealers are receiving more and more stock and should soon be able to fill all needs. It will take a little time, however, for a heavy over-all supply.

. . . The prices for firearms will be approximately the same for the last quarter of this year as they were in 1942. There will be very few increases. Rifle manufacturers have been granted an 8 per cent increase, but, according to OPA regulations, most of this must be absorbed by the dealer. About 2 per cent will be passed on to the consumer. As for shotguns, manufacturers may now raise their prices 9 per cent over 1942 levels, but dealers must absorb all of this. Each firearm is tagged by the maker with the OPA ceiling price.

. . . Industry advisory committees are working on the OPA to get greater price increases, but they have little chance of success. The OPA is standing pat.

. . . The Office of Surplus Property of the Department of Commerce has placed some 45,000 surplus shotguns on sale to dealers and wholesalers. No rifles are being offered. More shotguns, as well as revolvers, are expected to be available later. OPA price ceilings on the used shotguns run like this: Guns in Class I (usable as is) are 75 per cent of original price; Class II (minor repairs necessary) are 33 per cent of the new price.

. . . You won't be able to get any more shells this fourth quarter than you did last season. Production is still limited because of the continuing shortage of lead. But the WPB predicts that all restrictions will be off by the first of the year. Prices on ammunition are still frozen at 1942 levels.

. . . Action is expected soon on Senate and House bills to permit hunters in a duck blind to use not more than six live decoys in taking ducks. Introduced by Sen. Scott Lucas (D-Ill.) and Rep. Sid Simpson (R-Ill.), the bills are still in committee.

. . . One of the main problems in the National Parks continues to be the surplus of big game animals. The National Park Service says that more animals cannot be safely supported without endangering the welfare of entire herds. Surplus big game is now being killed in co-operation with State game authorities. And, as no hunting is permitted in National Parks, hunting seasons on lands surrounding park areas are being adjusted to increase the take of certain animals.

. . . The Park Service would like to turn over big game from the parks to State game departments for stocking purposes. A system of distribution is the only factor holding up this plan.

. . . There will be fewer ducks and geese on the southward flight this year. According to the Fish and Wildlife Service, the last inventory of waterfowl showed a decrease of approximately 20 million birds. That number may be surprising, but Frederick C. Lincoln, who conducted the survey, says that a check made by aerial photography makes the figure appear to be reasonably accurate.

TOURNAMENT REVIEWS

A Rifleman supplement is now available covering registered tournaments held throughout the summer. This is to bring the competitive shooter up to date on matches and scores. Hereafter, with magazine paper restrictions lifted, these summaries will be carried in The Rifleman.

If you're interested in who's been winning, where, and with what scores, write for your Tournament Reviews copy. It will be mailed you free of charge.

REVIVAL

The activities of the Niagara Frontier Rifle League, suspended in 1942 due to gas rationing, wartime working hours, and shortage of ammunition, are now being revived. Shoulder-to-shoulder matches are being scheduled for the 1945-46 indoor season.

All interested clubs in the Niagara Frontier Area should contact Ed Webb, 245 Wheatfield Street, North Tonawanda, New York. Mr. Webb is chairman of the schedules committee.

NRA MEMBERS' MEETING

The Annual Business Meeting of the Members of the NRA will be held at the Hotel Statler, Washington, D. C., Friday, November 9th, 1945, at 8 p. m. Purpose of the Meeting is the election of twenty Directors and the transaction of such other business as may properly be presented. All members of the Association have the privilege of the floor; Life and Endowment Members may vote.

The Nominating Committee, named by the President, has selected the twenty Life Members listed below to be nominated and voted on as Directors of the Association for the three year term ending in September 1948. Additional nominations may, of course, be made from the floor.

For Re-election

Colonel E. F. Sloan, USA (D.C.M.).
Commander Thurman Randle, USNR (Texas).
Lt. Col. F. W. Parker, Jr., AUS (Ill.).
Lt. Col. Payson D. Foster, N.G. ret'd (Mich.).
Mr. E. F. Bridgman (Mass.).
Colonel Joseph Ring, N.G. ret'd (Wisc.).
Mr. Henry Marsh (Del.).
Mr. J. W. Hession (Conn.).
Mr. P. D. Andrews (New York).

New

Major General Julian Smith, USMC.
Mr. Kinsley J. Voorhees (Calif.).
Mr. Harry D. Linn (Iowa).
Mr. Clark L. Wilson (Nebr.).
Dr. E. O. Swanson (Minn.).
Mr. Russell Wisler (Calif.).
Mr. R. O. Sinclair (Florida).
Brigadier General Sidney Hinds, USA.
Mr. John W. Dwelle (N.C.).
Mr. Merritt E. Carpenter (Vt.).
Mr. Russell Wiles (Ill.).

STOLEN GUNS

One German P-38, Serial Number 4052. Taken from a soldier's duffel bag. C. L. Williams, 223 Ellana Claire Street, San Antonio, Texas.

One .22 Hi-Standard 4¾-inch barrel, No. 64709 Model E. One .357 S&W Magnum 6½-inch barrel, No. 47267. One .38 Colt Officers' Model, No. 585113. All are equipped with King Click sights. (Unsigned.) 155 Berry Street, San Francisco, California.

One pair M9 binoculars, Serial No. 020305. Lt. Rodney K. Potter, Co. B, 137 Bn., 35 ITR, Camp Livingston, La.

One Colt Detective Special revolver, .38 caliber, 2-inch barrel, blue, known as the FitzGerald Model, No. 417310; also, a Freeland scope stand, black with four extensions; 2 Argus eyepieces, 12x8 and 26 power. Harry F. Pidgeon, 227 Kings Highway, West, Audubon, N. J.

One Smith & Wesson .22-32 Model (Kit Gun) 4-inch barrel, blued, pearl grips, Serial No. 529727. One Remington (Riders Patent) .32 R. F. caliber revolver nickel-plated, pearl grips, Serial No. 374. One I. J. .22 caliber solid-frame revolver, nickel plated, Serial No. 18537. Reward offered for information leading to their return. Richard D. Short, Woodstock, N. Y.

One Winchester 52 H.B., Number 52632 B.; front sight Olympic Redfield, rear sight Marble Goss. C. Crawford, Falstrom Rifle Club, 27 Dayton Avenue, Passaic, N. J.

BOOK REVIEWS

SMALL ARMS DESIGN AND BALLISTICS, Volume I

Colonel Townsend Whelen

Few men can boast of winning rifle matches fifty-two years apart. But then few men have been able to avail themselves of such golden opportunities to associate so intimately with rifles and shooting as has Col. Townsend Whelen. During the years between those two matches, probably before and certainly afterward, Colonel Whelen has had unusual opportunities to amass a fund of information on small arms which he now passes on to others. His Small Arms Design and Ballistics, Volume I, is part of the product of those fruitful years as a student of small arms, as an Ordnance officer, and as a keen sportsman who has hunted from the jungles of Panama and the Philippines to the tundras of Alaska and Canada. He has used these tools of the chase from the peaceful quail coverts of Virginia to the rugged mountain retreats of the goat and the bighorn.

The first part of Volume I, recently published, considers in the usual straightforward Whelen style, the design of small arms. It's easy to read and easy to understand. It includes a good coverage of the design, boring, and rifling of barrels and the steel of which they are made. The complex and difficult matter of chambering for various cartridges and actions is given adequate treatment as has the design and operation of the various types of manual and semiautomatic actions. The several types of the latter are explained clearly enough for even this reader to understand. Stocks and sights come in for their fair share of attention and throughout the book an invaluable mass of information is included which seldom ever gets into print for the consumption of you or me.

The second half of Volume I is devoted to the story of ammunition. It first gives a general coverage of the ammunition field and then devotes a full chapter to each one of the components of fixed small-arms "ammo," namely, the primer, the case, propellant powders, and bullets.

For the average rifleman there is an education between the covers of this book, and it should be in every shooter's library. As in most factual works of this nature, a few errors may have been uncorrected in the final copy. But, while this book may be no exception, the few errors are of a decidedly minor nature and merit no space here. The only thing that may be criticized from this reviewer's standpoint is the unusually long legends under the many illustrations in type, not very different from that of the body of the text. This sometimes gives the impression of reading the same thing twice, which is actually what happens. However, this does not in any way detract from the value of the book to the riflemen of the country.

(352 pages, cloth, voluminously illustrated by drawings, diagrams, and photographs; $6.00. For sale through the NRA Book Department.)

SELECTED SPEECHES OF GENERAL MARSHALL

Compiled by H. A. DeWeerd

Included among "The Selected Speeches And Statements of General of the Army George C. Marshall," published by *The Infantry Journal*, is the address made by General Marshall before the NRA on February 3, 1939.

In his address before the NRA on that occasion, General Marshall pointed out that, although the latest trend in military developments was toward the tank, the airplane, and the blockbuster, in the final analysis warfare narrowed down to the ground soldier and his small weapons, the rifle, the mortar, or the machine gun. The General stressed the importance of a policy of military planning which would provide for development of new and better small arms and commended the NRA for its activities in this direction which helped in the promotion of our National Defense Program before the War.

In commending the NRA, General Marshall said: "Without giving much thought to the matter, we all know that the old days of the squirrel hunter and the pioneer have departed, and with their departure has been lost that intimate knowledge of the rifle common to early American history. Your association undertakes to keep alive this knowledge, to develop better technique, better weapons, and better powders for the rifles."

In speaking of Germany's state of military preparation in 1939, General Marshall said that the fact that Germany had no accumulation of old weapons or other military equipment and thus was able to begin her rearmament program "from scratch" and integrate it with civil industry gave her an advantage over every other nation. "Had the great nations grown old together, in the gradual elimination of outmoded weapons, planes, and equipment, no single country could have gained such a long lead in the matter as attained by Germany."

The book contains forty-eight speeches made during the period 1938 to 1945 and is of certain interest to anyone who wishes a comprehensive picture of the military and political scene during that dramatic decade.

(263 pages, book size, cloth, $2.75. For sale by NRA Book Department.)

PISTOL AND REVOLVER SHOOTING

WALTER F. ROPER

No writer ever has written, and probably no writer ever will write a book on handgun shooting that will agree entirely with the opinions and ideas of any other shooter. This book is no exception. Probably every handgun shooter who reads it will disagree with it on one point or another; but handgun shooters who are familiar with the game will agree that few men have made a closer, more scientific study of handguns and handgun shooting—hence, that few men are better entitled to or better qualified to make opinions concerning these guns and their use—than is Walter Roper.

Profusely illustrated with fine photographs of most American and a few foreign weapons, this book gives a quick survey of the history of their development and use, their virtues and their faults, from the viewpoint of a man who has been in a position of peculiar vantage to observe that history. There are chapters, too, on sights, accessories, stocks, ballistics, and on how to shoot—all well reasoned, well written, and of sure value to the shooter, be he novice or expert. A book every handgunner will want; a book every prospective handgunner will find worth its cost as an aid to the selection of the gun best suited to his needs and as a guide to its use.—E. B. M.

(256 pages, cloth, halftone illustrations, $2.49. For sale through NRA Book Department.)

Dan A. Disbrow

Dan Disbrow, one of the outstanding rifle shots in the Inland Empire, known all over eastern Oregon and Washington, as well as in the Montana matches, died July fourth from a cerebral hemorrhage at the age of forty-two.

He was an ardent promoter of rifle shooting, was a Life Member of the NRA, and had a host of friends who will sorely miss him on the range.

Harry D. Crandall

Harry D. Crandall, of Seattle, Washington, died suddenly of a heart attack at the Veterans' Hospital, Portland, Oregon, May 24th. Mr. Crandall was a Life Member of NRA, Secretary of the U. S. Engineers Rifle Club in Seattle, and founder of the Izaak Walton League at Poplar, Montana.

Clifford E. Pearson

One of the long-time members and Treasurer of the Blackhawk Rifle Club, Mr. Pearson died of a heart attack on September 6th. He had been one of the most active boosters of the small-bore rifle game in the Chicago area, although he had not been an active competitor during recent years. He was General Sales Manager of the National Cash Register Company in the middle west and had served as Oil Rationing Executive for the Chicago Regional Office of the O. P. A. He was a Life Member of the National Rifle Association. He is survived by his widow.

Henry M. Yeiser

Mr. Henry M. Yeiser, of Modesto, California, NRA member and RIFLEMAN reader since 1885, died March 19, 1945, at the age of seventy-eight years. He is survived by his wife, who writes: "First he, and later on I, too, became interested in guns and we both enjoyed your magazine together. Thank you for the many happy hours it has given us, reading and enjoying your courage in carrying on the fight for the right to the freedom of firearms."

Warren A. Sprout, Sr.

Warren Austin Sprout, Sr., died at his home in Westfield, N. J., Thursday, August 23, 1945.

Mr. Sprout was an expert marksman. In 1912 he was a member of the American rifle team which won the championship at the Olympic games in Stockholm. He was a participant in numerous meets in this country.

His keen interest in the shooting game was retained until the last, though the infirmities of age and poor health prevented active participation.

Harvey E. Caldwell

Six planes, flown by members of the Civil Air Patrol, dropped flowers on the graves of H. E. (Ernie) Caldwell and Oscar O. Sloan, CAP flyers killed in a crash near Belen, N. M., July 20th.

Mr. Caldwell was a Life Member of NRA and a member of the local rifle club. He was thirty-five years of age, and before the war operated the Belen Motor Company.

COMING EVENTS

California, October 12, November 9, December 14—Tamalpais Gallery Pistol, at Alto. Francis Wadman, Route 1, Box 854, Mill Valley.

October 21, November 18, December 16—San Francisco Police Monthly Pistol. E. J. Dutil, 324 16th Avenue, San Francisco.

Florida, November 10 and 11—Florida West Coast Small Bore. L. W. Abrams, 705 Prospect Avenue, Clearwater, Fla.

Illinois, October 7—Sheridan Small Bore, at Deerfield. Robert Billeter, 936 Wade Street, Highland Park.

Missouri, October 14—Eastern Missouri State Pistol, at St. Louis. John D. Whitney, 3909 Flora Place, St. Louis.

New York, October 6 and 7—Grumman Gun Club Small Bore, at Bethpage, L. I. V. B. Cleaver, 12 Broadway, Rockville Centre.

Pennsylvania, October 6 and 7—Metropolitan Police League Pistol, at Pittsburgh. Wade Johnson, 4110 Tuxey Street, Pittsburgh.

October 14—Llanerch First Annual Small Bore Rifle, at Chester. Mary Jane Oster, Township Line, Llanerch.

Texas, October 13 and 14—Ada Zilker Robinson Pistol, at Zilker Park. Jos. B. Taylor, Police Department, Austin.

October 28—Capitol City Small Bore. Harry L. Kent, 3407 Exposition Boulevard, Austin.

Silas Ervin Nelson

After several years of failing health and a brief final illness, S. E. (Cy) Nelson, of Fergus Falls, Minnesota, died at noon Friday, July 27th.

Mr. Nelson was a member of the NRA and was one of the founders of the Fergus Falls Rifle and Pistol Club. An outstanding rifleman and pistol shot, he had won many medals at state, district, and league tournaments. He was one of the most enthusiastic members of the Fergus Falls Rifle and Pistol Club, and contributed a great deal of his time and talents to its success. He was an accomplished gunsmith and perhaps the most experienced man in his community in custom loading of rifle and pistol ammunition. He will be sadly missed in his own community and in shooting circles throughout the country.

Vice-Admiral W. A. Lee

To the present generation of shooters he was a legendary figure—the only man in all the history of the National Matches who ever won both the National Individual Rifle and the National Individual Pistol Match. Midshipman Willis A. Lee, United States Naval Academy, on Friday and Saturday, August 28 and 29, 1907, shot the National Individual Rifle course of six stages, including a skirmish run, and led by two points at the finish over Lieutenant William H. Clopton, of the Cavalry. A few hours later, on Saturday afternoon, the slender midshipman went to the pistol range and again topped the field. He beat, by one point, a Captain A. J. McNab who later became famous among riflemen as Colonel "Sandy" McNab.

From those days as a Midshipman, "Ching" Lee never lost his interest in small-arms practice. Thirteen years later, a Lieutenant Commander, he appeared at Quantico as a contender for a place on the 1920 Olympic Rifle Team squad. He made it—as an alternate; but his ability to produce scores under the weird conditions prevailing on the Beverloo range at Antwerp resulted in his being made a firing member of both the small-bore and .30 caliber teams in the Olympic matches. It was characteristic of him to produce results when the chips were down.

It was so in the pitch-black night of November 14, 1942, at Guadalcanal, when Rear Admiral Lee, receiving word that "the whole Jap fleet is coming down," took his two new battleships in a boiling dash "up the slot." The small group of PT boats and destroyers up ahead as a screen for the battle wagons heard their radios crackle with the message, "This is Lee. Get out of my way. I'm coming through." Lee went through; and, when the Japs broke off the engagement, they left behind on the floor of the troubled sea a battleship, three heavy cruisers, and a destroyer. Another battleship, a cruiser, and a destroyer were damaged but escaped Lee's guns in the darkness and treacherous channels.

For that night's work he received the Navy Cross. Later, as commander of a battleship task force, as second in command to Admiral Halsey with the famous 3rd Fleet, he received the Legion of Merit and Distinguished Service Cross.

It was Admiral Lee who, as Director of Fleet Training in 1941, was largely responsible for the reawakening of the Navy's interest in small arms training. His loss will be keenly felt in the shooting world; but an even greater sense of loss is felt by those who knew him, respected him, and cherished his friendship.

Admiral Lee was born in Natlee, Kentucky, March 11, 1888. He died suddenly in his barge at Casco Bay, Maine, August 25, 1945, while returning from shore to his ship. He was buried at Arlington National Cemetery on August 28th, the services being attended by Secretary of the Navy Forrestal and Chief of the Combined Chiefs of Staff Fleet Admiral Leahy.

DOPE BAG ☆ ☆ ☆ Conducted by F. C. NESS

THIS MONTH:

Springfield, Enfield, and Mauser Actions · Relative Hardness and Brittleness · Blow-up Tests By Ackley, and By the Dope Bag · N.R.A. Rust Tests Completed · Magnetized Barrels · Revolver Actions · Letters.

ALL OLD SPRINGFIELDS WEAK. On February 19, 1945, I received the following information from a gunmaker in regards to a blown-up Springfield rifle. Quote:

"I am sending you the Springfield rifle as per your request to photograph. The scope has been repaired so we are not sending that, but you can picture the rest of it to suit yourself. The scope itself was doubled up almost U-shaped and had a large hole blown in it from the force of the explosion. However, we straightened it out and made use of it. Half of the action disappeared entirely and it never could be found. The barrel itself was unharmed. It simply rolled off the stock as the action disintegrated.

"The blowup was caused by EXCESSIVE HEAD SPACE together with a poor case. Incidentally, you will find that the action had an Enfield bolt specially fitted, such as were sold by Sedgley to Bannerman for distribution. However, the bolt is the only part that held, or it would have, in all probability, blown the shooter's head off; so we could really find no fault with *this* part. It so happened that the shooter had both hands on the grip of the stock, or he would have probably lost his left hand. He was shooting the rifle with the muzzle over a bank. Even so, he was laid up for over a month with eye injuries, from which he finally recovered.

"These reheat-treated actions might be all right when properly heat-treated, but too many are ruined rather than improved in the process. Another lesson to be learned from this particular accident is that excessive head space is dangerous, and especially so in these older actions.

"The Springfield receiver we sent you is one of Burrell's and in no way has been altered with the exception of the bolt handle. One of our barrel-makers was the shooter and he also fitted the bolt. A great number of such conversions were made by Sedgley using the Enfield bolt, and the way it is done is to straighten the face of the lugs to correspond with the straight locking recesses in the action, and to shorten the bolt to fit the Springfield action. As you will see, the bolt itself held all right, which was lucky. This is a practice not to be recommended, however, although the Enfield bolt is stronger than that of the Springfield. Of course, this particular conversion was not the cause of the accident. The cause was entirely due to EXCESSIVE HEAD SPACE.

"The rifle was chambered for the .228 Magnum and the load was approximately 2 or 3 grains under maximum, so there was no pressure trouble. The excessive head space condition had occurred because the barrelmaker had changed barrels, and had made a batch of cases for a slightly shorter chamber. Not wanting to make new cases, he had been setting the bullets out so that they came in contact with the lands and in that way, he figured, he was taking up the head space. He simply blamed this accident on the old, reheat-treated Springfield, which is not entirely right. What happened is that he found a case that did not blow out the way he expected it to and which parted just ahead of the solid head, allowing the gas to rush back into the action. The Springfield action, having no adequate gas protection, would just not take it. The general effect was one of elongation, but the old, hard steel which looks like cast iron, did not elongate and just came apart in every direction. Had it been one of the nickel steel actions, in all probability, it would not have swelled the receiver or anything, but would have blown up the magazine. This, incidentally, is a trait of the Model 70 Winchester.

"When such accidents occur in the Model 70's, and I know of several, the stock is invariably blown apart and the magazine completely blown to pieces, which usually does the shooter no particular good. Getting back to the Springfield, the general idea of this particular accident is to bring home the fact that these actions do not have adequate strength for a hot .30-'06 load and should never be used with anything but standard factory loads, and even then the head space should be minimum.

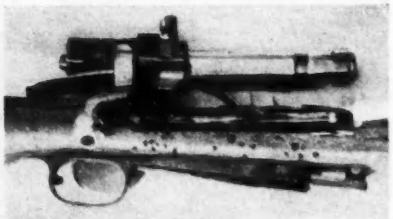
"I just received a letter from George Vitt of the A. F. Holden Company. This company is one of the foremost heat-treaters in the United States and he says that they will not even think of accepting one of these old actions for reheat-treating. To quote him:

" 'The old Springfield receivers were made of cheap, almost plain, carbon steel, that was merely carburized and quenched. The type of steel used would not readily lend itself to good results from the best heat-treating practices, even though there are one or two outfits in Pennsylvania and elsewhere, who advertise the so called reheat-treated Springfields for sale. I would no more trust these receivers without making a chemical analysis and without testing them on the Rockwell machine, than I would jump off the Empire State Building.

" 'From the references I have, the reheat-treatment of these receivers amounts to the same thing as the so called double heat treatment that was practiced at the Springfield Armory prior to 1929. In other words, neither of the two is much good for the reason of low-grade material used in the receiver.' (End of Mr. Vitt's quote.)

"Elmer Keith and I, while we were in the Ordnance Service, ran rather extensive tests on the low-number (hard) receivers, and we had one as low as Number 55. We fitted all of these receivers with new nickel steel bolts with minimum head space and they tested with the standard Government blue pill loads with no trouble at all, which leads me to recommend the fitting of one of these new bolts to such old actions and then adjusting the head space to minimum tolerance rather than to have these actions reheat-treated. The accident in question was not due to any fault of the receiver, etc., other than the things mentioned, but was due directly to the excessive head space, which was the fault of the shooter. But the fact remains that these faults of shooters in general are a condition with which we have to contend. Therefore, it is best not to recommend these old actions for any of the more powerful loads.

"Incidentally, I noticed that you mentioned a well-known reheat job which is being done on these Springfield receivers by a well-known firm. I wish to state that many of these old actions treated by this firm (which is like the one I sent you), are letting go in every direction. In fact, I personally believe these are about the worst in the bunch, because they simply softened the receivers, which would allow a very powerful proof load to be fired without any danger, but which allowed the bolt to gradually set back, increasing the head space dangerously." (End of gunsmith quote.)—R. E. Simmons.



The right side of the blown rifle

ACTION BLOWUP TESTS. After deliberately destroying a Mauser and a Model 1917 action by employing destructive overloads, Ackley wrote us as follows (in reference to Simmons' quotations, above):

"The Enfield let go in the same manner as the Springfield, although it took a much heavier load. The receiver ring disappeared, and it would have been fatal to any Bull Pup shooter. The stock would have been blown off, had one been fitted, with plenty of injury to the left hand, had it been a conventional stock or rifle. The Enfield receiver blew off completely, without much injury to the bolt.

"The Mauser action was a 1944 issue; one with a stamped guard. On this one, half the split lug came off along with about half of the bolt face. The action did not blow out. The safety lug, apparently, did not contact appreciably, and the receiver ring did not show any swelling. The rifle could not be opened, on account of a broken lug, but it looked all right. Half of one lug was gone, leaving 1½ lugs besides the safety lug, without apparent injury to the receiver except for setting the lug recesses back somewhat. This test of one each does not conclusively show which action would stand the most, but it might serve to offset some of the stories that the Mauser actions are no good. Although we prefer the Mauser action to any other, we do not recommend all Mauser actions, excluding all but good Mauser actions, because there are plenty of poor ones and some that are nearly worthless."—P. O. Ackley.

COMMENTS. I agree with P. O. Ackley that the only good Springfield action is one made of nickel steel (commonly referred to as 3½%) as issued by Springfield Armory with serial number at or above 1,257,767 or by Rock Island Arsenal with serial number above 285,507. In THE AMERICAN RIFLEMAN of July, 1944, I reported an inadvertent blowup test of a low-number Springfield action reheat-treated by R. F. Sedgley, Inc. It was strong enough for ordinary pressures, but it shattered when it did let go, indicating brittleness or inadequate elongation even with a high-enough yield point and a tensile strength adequate for normal loads. The load was an abnormal one that blew out the solid head of the very strong .220 Swift case.

Indirect information from the Bureau of Standards corroborated that from the (Sedgley) heat-treating firm that the very ordinary carbon manganese Springfield steel needed a hardness above 50 Rockwell C for adequate tensile strength and yield point. (The two tested were 54RC and 55RC.) We were skeptical about the need for

this excessive hardness when we learned that metallurgists disagreed about the practice of hardening these low-grade receivers up to 53 RC. Our conclusion, from all these opinions, was that a hardness in the 40 RC range would be ample and assure a tougher action, or less danger of the small-fragment, hand-grenade effect. The attitude of the metallurgists is that the poor material in these Springfield actions makes any of the carbon steel variety undesirable, including those double reheat-treated at Springfield Armory in the series above 800,000.

The Houston Heat Treating Company was of the opinion that a hardness in the 30 RC range would give adequate tensile strength and impact resistance. After heat-treating our low-number Springfield action to a hardness of 40 RC, that firm predicted a tensile strength of up to 145,000 pounds per square inch and a capacity for handling pressures as high as 100,000 pounds per square inch. The same abnormal load was used in the same barrel to test this softer action, and it held this time. The mainspring broke in two places and the bolt lost its flange forward of the extractor cut, but nothing else happened. Any setback of lugs or their seats was negligible, or not enough to be detected. That was a severe test, and we are convinced that the 40 RC range is sufficiently hard. This happens to be twice as hard as the mean for Mausers, which run under 20 RC as a rule and rarely much harder.

A nickel steel Springfield was tested in the same manner, using the same barrel (M1 Springfield) and the same abnormal load. Again the entire head of the thick-webbed .220 Swift case blew out and sent molten brass and tiny bits of the case as far back as the bolt sleeve. In addition to blowing off the bolt flange, as previously reported, the sleeve was broken at the juncture of its threads with the bolt. The receiver remained intact and nothing else happened to bolt or action. We do not have the hardness figure for this nickel steel action, but the armory practice seems to range between 45 RC and 55 RC, according to reported tests.

Since the low-number Springfield action heat-treated by The Houston Heat Treating Company to 40 RC held up as well as the nickel steel Springfield action in this severe duplicate test, we are now seeking a double-reheat-treated action in the 800,000 series for a comparison or check test. We think the same load will wreck the Armory heat-treated action, and want one without any strings other than the long one we will attach to the trigger.

Although I favor the nickel steel and massive rigidity of the Model 1917 (Enfield) action for Magnum cartridges or heavy experimental loads, I am inclined to agree with Ackley's opinion of the "good," or better type, Model 1898 Mauser actions. In relative hardness they run a little on the soft side, and some gunsmiths think they will require head space adjustment after 3000 standard .30-'06 loads from setting back of the lugs or seats. My own Model 1898 Mauser was imported about 1925, and its hardness varies from 19 RC to 38 RC in different parts of the action. I have seen two of them with either the lugs or the seats under 20 RC. This action has been fired many thousands of times with six different barrels of .30-'06 and .228 Ackley Magnum caliber, many of the loads being of heavy experimental type. At least two of the bores were fired enough to wear out. This action is now being fitted with another Magnum barrel. Earlier this year, I got a report on the Model 1898 Mauser made in the period between 1938 and 1940. These ran from 28 RC to 32 RC and their barrels, from 28 RC to 31 RC. Incidentally, the metallurgists of some of the better heat-treating companies will not work on this action any more willingly than on the carbon manganese Springfield action.

The wise shooter will not take chances. He will have the head space checked and adjusted by some competent gunsmith. Then he will have the rifle proof fired, followed by at least five regular loads of maximum type. Thereafter he will avoid using heavy loads in that rifle when he fires it from his shoulder.

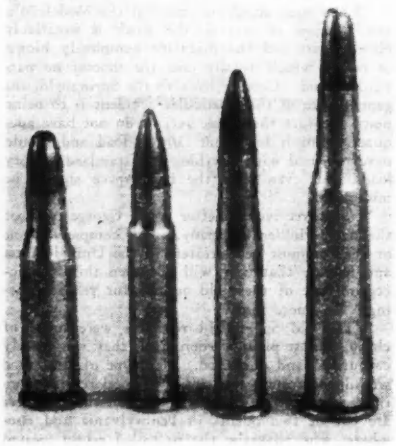
CARTRIDGE SHAPE AND SIZE. Is my idea reasonable? It has been my impression that a few .22 wildcats have attained high velocities with a comparatively small case and powder charge, while others, using much heavier powder charges, do but very little better, if any better. This suggests that the shape of the cartridge is of considerably more importance than is the weight of the powder charge. The efficiency, then, would depend almost entirely on shape (assuming, of course, that the correct type of powder and bullet be used). It seems also that the powder should be, if possible, ignited throughout its length upon the instant of firing. This latter requirement would be more easily attained with a short, thick case than with a long, slender one.—J.W.H.

Answer: Your idea is reasonable all right, but to what extent I cannot say. Some say the long, slender case is more efficient, from the thermal or ballistics standpoint, and some one on this side of the debate has pointed to the Bluestreak. I am showing it and others in groups, each group picture representing a given velocity bracket. Note the different shapes and sizes. The purposes of design and development vary. Some were designed for a certain propellant, or for a hunting condition, or for a definitive velocity job. Among factory loads, the .220 Swift was designed to give the ultimate velocity and trajectory, the .218 Bee and .219 Zipper, to fit the limitations of certain rifle actions. With a weight of bullet different from those given, the velocity of some of the cartridges would be too high or too low to qualify, but as shown and listed they all qualify for the group velocity, as given in the captions.

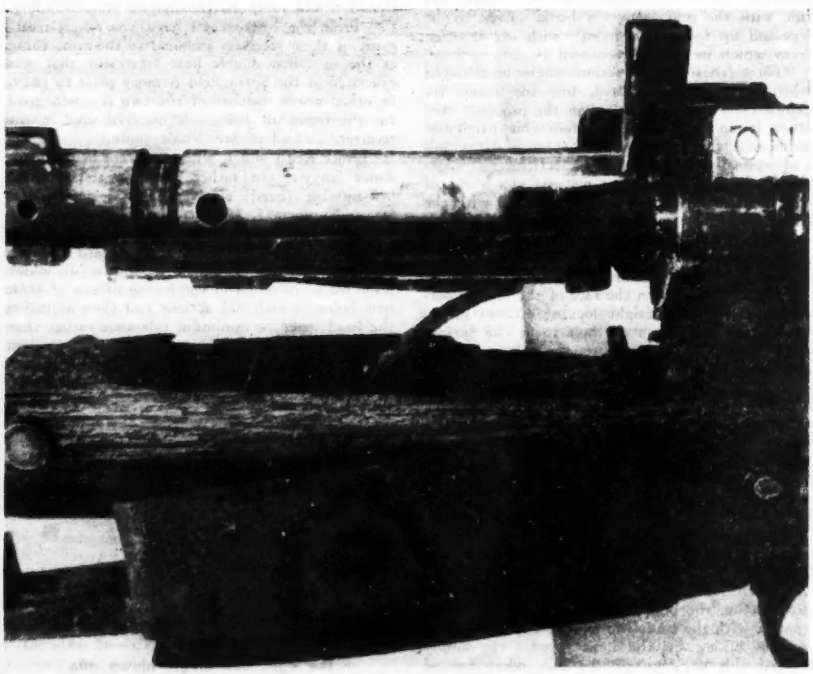
My mail happens to contain two commentaries on the shape matter. Fred A. Seegert wrote about a proof test of his .30-.348-W wildcat, which employs a relatively short, fat case of medium capacity. Designed to give .30-'06 ballistics, the .348 Winchester case holds 68 grains of No. 4350 powder when necked down for .30-caliber bullets. In the proof load, J. J. Pfeifer tamped in 75 grains behind the M1 boattail bullet and primed it with the R.A. No. 9½ KB. A string was tied to the trigger of the thin-wall, high-side, nickel-steel Winchester S.S. rifle. The bullet went through 21 inches of solid oak and a plate of airplane armor ⅛ inch thick. All it did after that was to gouge a hole the size of a clenched fist in the concrete floor. The case required a slight tap for extrac-

These Four Develop 2800 F.S.

Factory .218 Bee 46-grain bullet, Kilbourn Hornet 50-grain, .22-3000 Lovell 55-grain, and .22 high-power Savage Factory with 70-grain bullet.



A close up view of the blown up Springfield by R. F. Simmons



tion, but it looked as good as ever and the primer remained unflattened. The same case was subsequently loaded and fired six times with normal loads, and the rifle functioned normally. Pfeifer says the .30-.348-W is an enlarged version of his .22 P.R. wildcat, and he has also failed to wreck that rifle in his proof tests. Seegert agrees with Pfeifer that the fat, short case deserves the credit for handling large volumes of powder so well, or better than any long, slender case could handle the same volume.

The other comment comes from E. Baden Powell concerning the efficiency of Controlled Combustion Chambrage in .30 caliber cases of similar capacity. Regarding the same .30-'06 load and M1 bullet, he points out that 50 grains of No. 4064 develop about 2,900 foot-pounds of energy whereas, in the C.C.C. version, 58 grains develop over 3,600 foot-pounds, an increase of 25 per cent for the 16 per cent increase in the charge. With the 180-grain boattail, the increase is greater for the same loads. This is a relatively long, slender case of medium capacity. In the .300 Magnum, a long slender case of great capacity, the C.C.C. version uses 18 per cent more powder than the standard .300 H. & H. Magnum, but it develops 31 per cent greater energy, according to Powell.

MAGNETIZED RIFLE BARRELS. The northern nomadic tribes and the professional hunters of Siberia use crude, cheap, .22 caliber muzzle loading rifles, made in the city of Kjevsk in the Ural Mountains. The Ural steel is naturally magnetized, and the accuracy of these simple weapons is uncanny. Their owners consistently shoot squirrels and other small game through the eyes to save valuable furs and skins. I presume that the smallest particles (molecules?) of magnetized steel act more uniformly and have more elasticity than those of common steel. Knowing the astonishing accuracy of naturally magnetized barrels, I wrapped common barrels with insulated wire from chamber to muzzle and artificially magnetized them by hooking the ends to a car battery for 48 hours. Those in .22 and .30 caliber showed an improvement in accuracy, but such primitive magnetizing does not last long enough. It might be worthy of more exhaustive experiment, especially with the overheated barrels of autoloaders, machine guns, and artillery.—Boris d'Adamovitch Leliva.

FOR SHORT ACTIONS—Some of the arguments advanced in opposition to the short action were that to obtain positive ignition the spring tension would have to be increased to an uncomfortable degree, also that the weapon would not operate double action. The greatest objection was that once the short action was installed, it would be almost impossible to have the standard action replaced.

In my case, none of these hold true for my .357 S. & W. Magnum. The heaviest mainspring obtainable was installed and I do not find the hammer action stiff or uncomfortable in the least, and the weapon fires as well double action as it did with the standard action. That takes care of the first two arguments against the short action. Should I ever desire to change back to the standard action, it will only be necessary to replace the hammer, trigger, hand, and side plate. The side plate, because it was necessary to remove the spring catch. The hammer and trigger studs were not altered in the least. In other alteration jobs I examined, both the hammer and trigger studs were removed and relocated.

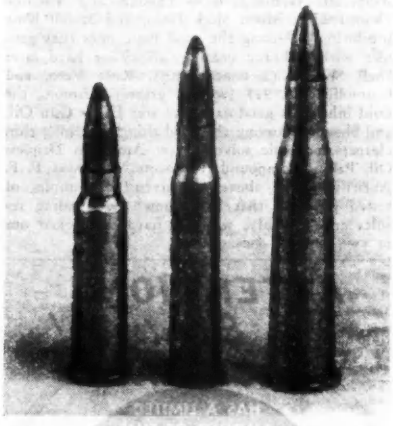
As for the distance of hammer travel, the action was shortened by one third, a small piece having been welded onto the hammer in the crotch in back of the spur to give a positive stop.

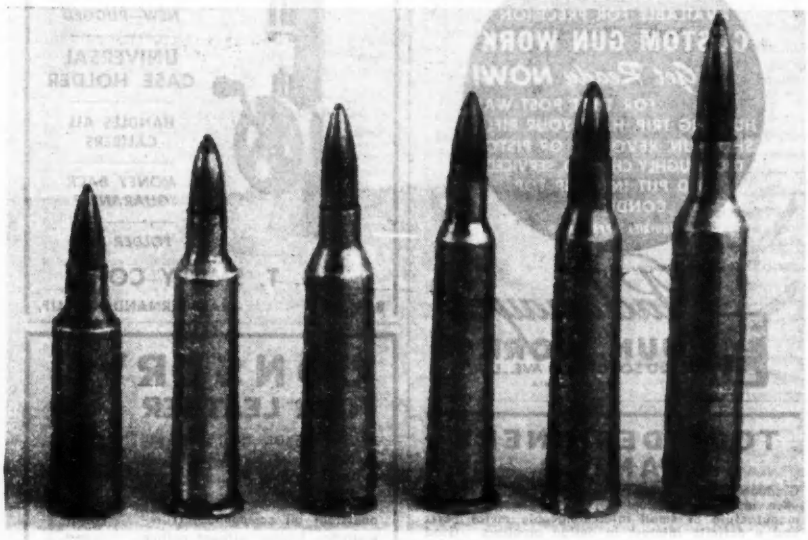
I use this weapon for target shooting and am highly pleased with both the improved action and scores. The action is velvet smooth, and I find the point of aim much less disturbed when cocking for the next shot, which naturally will give more time to realign the sights.

For some shooters, the short action is of absolutely no benefit, depending upon the size and shape of the hand. I can best give you an idea of my case by stating that I wear a size eight and one half, short-finger dress glove.

I am so well pleased with this action job that I had a similar one installed on my S&W .38-44. In fact, I am so happy about it, I should like to put in a plug for the party who did the job for me. It was done by one Bill Kirsh, of the American Gun Works at 1284 Sunset Blvd., Los Angeles, California.—Frank Breuning.

These Three Develop 3300 F.S.
Mashburn Bee, 2R Lovell, and .219 Zipper Factory with 45-, 46-, or 47-grain Bullets





These Six Develop 3700 F.S.
Barr-Nix, 220-30, Lovell improved Zipper, Gebby Varminter, Marciante Bluestreak, and Factory .220 Swift all with 55-grain bullets, and .228 Ackley Magnum 70-grain.

RUST PREVENTION. The corrosion or oxidation of iron and steel, in the presence of air and water, is an electrochemical action that reveals itself as rust, an iron oxide. It forces the owner of guns, shop tools, and other instruments made of iron alloys, to protect their vulnerable surfaces. The rusting process is most active in hot, humid climates, or when salt is present, on the metal or in the air, as along the coast. It is least troublesome in dry climates, as in the desert areas or at high altitudes. Protection of vulnerable metal consists of application of a surface film of some suitable type. When plating is impracticable, as in the case of most tools, gauges, and cutting instruments, a coating of grease, oil, or wax is used.

There are many types of corrosion preventives for as many different types of protection jobs. One type is designed to either displace or absorb moisture, or both, such as Proctoil, Rust Ban 392, Tectyl 511, and Gun-K Oil (.30-'06 Cleaner). Others intended for precleaned surfaces leave a thin transparent waxlike film, after their carrier solvent has evaporated, such as Anti Rust Oil, Seal Steel, and Rust Ban 391. Another type leaves a thicker and harder varnishlike film, such as Soft Amber Rust Veto. Others leave a sticky, tough, nondrying film, such as Cosmoline No. 915. Others also leave oily or greasy films, both the protective value and the messiness usually depending on the thickness or amount of goo. These latter include all our oils and greases, good, poor, or ordinary.

Although greases, as a class, assure the longest protection, they are applied with the greatest difficulty, especially in deep corners and relatively inaccessible recesses, for they preclude a thorough mechanical coverage of the entire surface. While the thin solvents and cleaners are most easily applied, and assure the most thorough coverage, as a type they afford the shortest period of protection, usually only temporary. Those that leave a thin waxlike film require a chemically clean surface, free of finger marks, etc., or corrosion will not be prevented even over short periods. Lanolin or wool fat and petrolatum or vaseline, in combination, form an effective corrosion preventive, but thorough coverage is difficult because lanolin is stringy. Softening the mixture with a fluid natural oil, such as sperm oil, might result in better protection solely from more thorough coverage. Good lubricants may not be good rust inhibitors, and the better grease-type inhibitors may be poor lubricants.

In determining their relative resistance to corrosion, we dipped cleaned steel blades in the test products and suspended them in air for several hours to let the liquid drain and set. Greases and pastes had to be smeared on, of course. Then we immersed a part of the steel subject in a 97 per

cent solution of salt and water. The following tables show the start of rusting in the salt solution and in the air and the relative rate of rusting for the different types of products tested, each represented by its serial number. This completes our report on all rust tests made up to August, 1945.

Fluid Cleaners and Solvents

No.	*In Salt*	*Rate*	*In Air*	*Rate*
42	3rd day	rapid	16th day	slow
45	3rd "	rapid	16th "	rapid
53	2nd "	rapid	16th "	slow
60	4th "	rapid	16th "	steady
61	2nd "	steady	20th "	steady
62	6th "	rapid	50th "	steady
63	6th "	steady	50th "	slow
64	11th "	slow	60th "	steady
65	4th "	steady	37th "	rapid
69	5th "	slow	55th "	steady
70	5th "	slow	55th "	steady

Gun Oils and Thin Lubricants

No.	*In Salt*	*Rate*	*In Air*	*Rate*
41	3rd day	rapid	13th day	steady
48	6th "	steady	55th "	steady
49	3rd "	rapid	21st "	steady
51	29th "	slow	95th "	slow
52	4th "	steady	13th "	slow
55	4th "	steady	74th "	steady
57	2nd "	rapid	6th "	steady
58	4th "	rapid	50th "	steady
72	5th "	slow	38th "	steady
73	5th "	rapid	47th "	steady
74	5th "	slow	68th "	steady
75	17th "	slow	28th "	slow
80	2nd "	slow	16th "	slow
76	30th "	slow	60th "	slow
81	16th "	steady	27th "	slow
77	none in 44 days		14th "	steady
82	6th day	slow	27th "	slow
89	3rd "	steady	20th "	rapid
92	none in 60 days		none in 60 days	
93	3rd day	slow	16th day	steady

Thick Oils and Thin Greases

No.	*In Salt*	*Rate*	*In Air*	*Rate*
43	8th day	rapid	6th day	steady
44	8th "	slow	111th "	slow
54	13th "	slow	74th "	slow
50	3rd "	steady	13th "	steady
56	2nd "	steady	2nd "	rapid
71	5th "	steady	72nd "	rapid
84	6th "	slow	27th "	slow
79	25th "	slow	14th "	steady
83	none in 44 days		16th "	slow
78	none in 44 days		10th "	steady
85	4th day	slow	32nd "	rapid
86	6th "	steady	32nd "	slow
91	2nd "	steady	16th "	steady
90	8th "	steady	32nd "	rapid
92	none in 75 days		none in 75 days	

Thick Greases and Pastes

No.	*In Salt*	*Rate*	*In Air*	*Rate*
46	81st day	slow	150th day	slow
47	81st "	slow	102nd "	slow
59	25th "	slow	29th "	slow
68	9th "	slow	126th "	slow

Products numbered from 41 to 50 were tested in the fall of 1942. Those numbered from 51 to 65 were tested in the summer of 1943. Those numbered from 66 to 72 were tested in the spring of 1944. Those numbered from 73 to 75 were tested in the summer of 1944. Those numbered from 76 to 79 were tested in the fall of 1944, and the others, in the summer of 1945. Those listed out of regular order indicate duplicate tests of the same product on different dates. No. 90 is the same product as No. 91, but the subject steel, in the latter test, was first dipped in brine, at the maker's suggestion.

The best inhibitor is, of course, that which prevents the inception of corrosion for the longest period in air, salt, and water, and then retards the advance of corrosion after inception. The table shows which classes of products gave the best protection, and which were the best inhibitors in each class. Although the electrochemical action of corrosion is stimulated by salt and water, some of the subjects rusted in the air before rusting below the surface of the saline solution. Among the most fluid preparations, or those in the first group, No. 63, No. 69, and No. 70, showed excellent inhibiting qualities for this class. In the second group, No. 92 is outstanding, followed by No. 51, No. 76, and No. 77. For this class, No. 72 and No. 74 were also good. Among the heavier oils, the order of superiority was No. 92, No. 78, No. 79, No. 44, and No. 86. All these, except No. 92 and No. 44, are variants of the same product, a basic inhibitor. It will be noted that all the thicker greases were good rust inhibitors. The best two of this class remain unequalled by any of the products in the other classes.

The product names signified by the code numbers cannot be given. Any product represented on the list can be identified only by its maker. However, from all our rust tests over the past several years, that have covered all the better-known advertised brands and many others, the more effective rust inhibitors in each class can be named. Among the greases in the leading group, these are: Rig Universal, Rust Ban 347, NoOxid A-Special, Jaymac, 50-50 Lanolin and Vaseline (homemade), Moon Sleek Plain, and Stanol Rust Inhibiting. Among the good basic ones that protect with a heavy coating, sticky or hard, are: Shell Special (a concentrate), Rust Veto, and Cosmoline No. 915 (solvent grease). Among the fluid inhibitors good examples are: Hall's Gun Oil, and Sheath. Among the good thin lubricants, thin cleaners, or basic solvents are: American Dripless Oil, Palma Compound, Protocote, and Alox F. F. Antirust. The above are given as examples of tested products that have shown outstanding results and, possibly, we may have overlooked one or two worthy ones.

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Sportsmen!
PACHMAYR
HAS A LIMITED AMOUNT OF TIME AVAILABLE FOR PRECISION
CUSTOM GUN WORK
Get Ready NOW!
FOR THAT POST-WAR HUNTING TRIP, HAVE YOUR RIFLE SHOTGUN, REVOLVER OR PISTOL THOROUGHLY CHECKED, SERVICED AND PUT INTO TIP-TOP CONDITION.
INQUIRIES APPRECIATED
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TOOL DESIGNERS WANTED
Graduate engineer or equivalent. Specific experience in design of tools, fixtures, gages, etc. for manufacture of small interchangeable metal parts and a definite interest in design problems. Good post-war prospects. State age, marital status, details of education, experience, draft status, present salary and expected salary. Enclose recent photograph or snapshot.
REMINGTON ARMS CO., INC.,
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BY A SHOOTER

FREELAND ARM CUFF & HOOK	$2.50
FREELAND CHAMPION RIFLE STOCK	35.00
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FREELAND Regular 50-hole Cartridge Block	.60
FREELAND Recoil Spring for Rifle Scopes	3.00
FREELAND Deluxe Offset Tripod	7.50
FREELAND Fore-end Stops (Depending on rifle stock)	$1.50 and 2.50
FREELAND Lucky Fellow rain outfit	8.50
Hard blk. leather used holsters for same	1.85
Mershon Rubber Rifle Butt Plates	1.75
Croft and Red Head Rifle Coats	8.50
Croft Shooting Glove, open end	2.00
Protecto Horsehide Shooting Glove	3.00
MODERN Bond Reloading Tools	13.00
MODERN Bond 2-cavity Moulds	8.50
RED HEAD Reloading Tools	14.50
Atlas P.S. Mat	8.50
ARGUS SUPER GRADE SPOTTING SCOPE	74.50
WEAVER SCOPES 330S AND 440S	29.70, 35.30
LYMAN ALASKAN SCOPES	50.00
Sheepwool Pistol Holsters	1.50
Official NRA 3-way Scoring Gauge	1.75
Bell .22 Spring Type Gauge	.30
THOMAS TRIGGER FOR YOUR 52 WIN.	19.00

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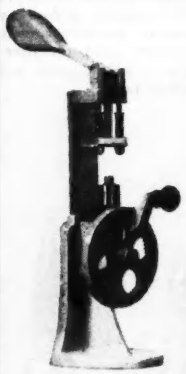

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NEW—RUGGED
UNIVERSAL CASE HOLDER
HANDLES ALL CALIBERS
MONEY BACK GUARANTEE
FOLDER FREE
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YOUR LEATHER
Regular LEXOL treatments will greatly extend the useful life of leather.
LEXOL is really an improved neatsfoot oil compound. It renourishes leather without dulling it or leaving a residue to catch dirt or soil clothing.
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THE ARMS CHEST

GENERAL REQUIREMENTS APPLICABLE TO CLASSIFIED ADVERTISING

1. Transactions Based on Good Faith: ARMS CHEST transactions are based on good faith and mutual satisfaction. Deliberate misrepresentation, disregard of usual business ethics or the attempt to circumvent these general requirements, when brought to our attention, will result in refusal of further advertising and might result in disbarment from the NRA in the case of members.

2. All Orders Subject to These Conditions: WE reserve the right to edit all copy to conform with our standards and to reject or discontinue any advertisement which we consider undesirable.

3. Who May Advertise: The ARMS CHEST is an open market trading post. Any individual or firm whose advertisement and methods of doing business meet our requirements may advertise their goods or services.

4. Rates: All classified advertisements must be accompanied by remittance. The rate is 15 cents per word including name and address—minimum charge $2.00.

5. How to Count Numerals, Etc.: Groups of figures are counted as one word (example: .30-30, 250-3000, $150.00, $1.50). Abbreviations consisting of initials or single characters likewise are counted as one word (example: W. H. Smith; H.B., meaning heavy barrel; H.P., meaning highpower). Hyphenated words are counted as two words (examples: 20-gauge, pearl-handled, no-slip).

6. "For Sale" Ads Must State Price: A specific price must be stated on all FOR SALE ads—except that the phrase "write for calalog" may be used when listing real estate or merchandise in quantities.

7. Firearms for Sale or Trade Must Be Defined: The *condition* of every gun (including essential parts) advertised for sale or trade, *must* be specified according to *NRA standards*, as follows: PERFECT—meaning factory condition; EXCELLENT—meaning new condition, implying negligible amount of use; VERY GOOD—meaning practically new condition, implying little use, with no appreciable bore wear and only minor surface scratches or wear; GOOD—meaning moderate use with some finish worn off, only moderate bore wear, with no pits and nothing worse than a little roughness in the bore; FAIR—meaning no parts missing necessary to use of gun, reasonable wear inside and out, nothing worse than minor pits in steel or stock, gun sufficiently accurate for hunting. POOR—meaning marred appearance and pitted or badly worn bore.

8. Non-Specific Phrases Barred: Phrases such as "highest" or "top prices paid," as well as any other so-called "auction-type" phrases are not acceptable. The terms "fair price paid" or "state price wanted" may be used.

9. Blind Ads Not Acceptable: Box number or blind ads will not be accepted. Give your complete name and address, to insure prompt delivery of all mail or telegraph replies.

10. Requesting Privilege of Examination: Purchasers desirous of examining merchandise before acceptance should request shipment by express C.O.D. with examination privilege. This procedure permits the purchaser to inspect the merchandise *in local express office* and authorized the express company to return unsatisfactory merchandise at shipper's expense.

11. OPA Ceiling Prices: An agency of the Federal government has legally fixed the prices of various commodities, including dealer and individual sales of ammunition (except handloads), and firearms, both new and used, except guns personally owned by individuals, acquired for their own personal use. Attempts to evade ceiling prices are violations of Federal statutes. It is physically impossible for us to ascertain whether or not firearms advertised in the Arms Chest are "personally owned" or to check advertised prices against legal ceiling prices. This is the responsibility of the advertiser, and advertisements offering to buy or sell merchandise at higher than legal prices will, when called to our attention, subject the advertiser to the penalties mentioned in paragraph 1.

12. Federal Explosives Act Defined: Under the Federal Explosives Act of 1941 all buyers, sellers, and possessors of gunpowder (not complete cartridges) must be licensed. Explosives licenses are usually obtainable from county court clerks. Purchasers must submit such licenses or a certified copy thereof to the seller at time of sale.

13. "Outlawed" Firearms Defined: The sale of certain firearms is outlawed by Federal law unless handled by a Federally licensed dealer. These included machine or submachine guns; sawed-off rifles and shotguns with barrels of 18 inches or less, and Mauser and Luger auto pistols *with holster stocks.*

14. Responsibility for Illegible Copy: Type or print advertisement plainly, as we can not be responsible for errors due to illegible writing.

15. Closing Date: The closing date of all advertisements is the 5th of the month preceding month of issue.

FOR SALE

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FLASH: (20 PAIR) B&L RAY-BAN SHOOTING glasses with famous B&L Kalichrome (yellow) lens, distinctive 1/10 12K yellow gold prewar frames, sweatbar, case, brand new, factory guarantee, endorsed by Ness. Only $12.50, order today. Henry Adams, Box 114, Centerville, Iowa. (Life Member.)

SEND THREE CENT STAMP FOR LIST OF modern and obsolete cartridges. Kimball Arms Company, Woburn, Mass. tf

1945 CATALOG OF FIREARMS FOR COLLECtors and M. L. shooters, 23 pages, 428 items and many fine drawings, price 25¢. The House of Guns, Alpine Place, Arlington, N. J. 10-45

THE REVOLVER TIMING RECORD—A 10 INCH RCA-Victor phonograph record, practice timed and rapid fire anywhere, by yourself, nothing to watch—just listen, for dry shooting, basement and outdoor ranges, one side 10 second timing, other side 20 second timing, plays on any phonograph, $1.50 postpaid. The Original Sight-Exchange, Box J, Paoli, Penna. 2-46

PATENT PROTECTION. INFORMATION AND invention record free. Randolph & Beavers, 370 Columbian Bldg., Washington, D. C. 12-45

CASWELL TARGET CARRIERS GIVE THE shooter every possible point because they hold the target steady and require no exertion to operate, fully equipped with speedy ball-bearing pulley wheels and target holders for every type of indoor paper rifle or pistol targets. Caswell Target Carriers, Anoka, Minnesota. tf

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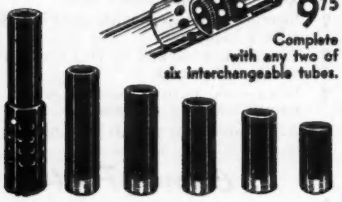

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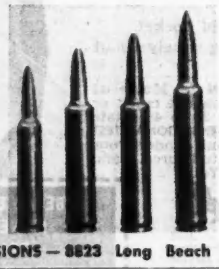

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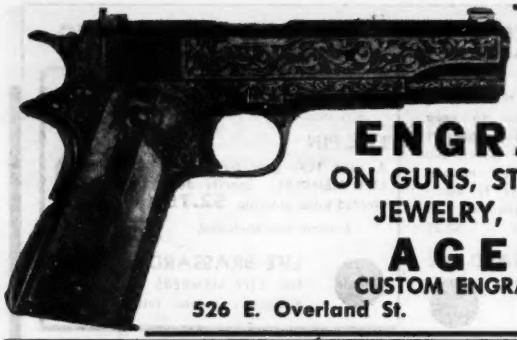

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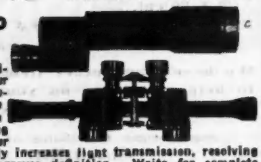

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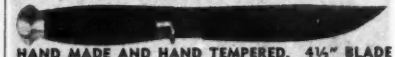

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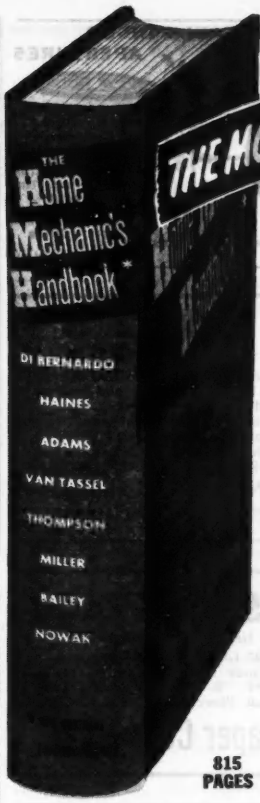

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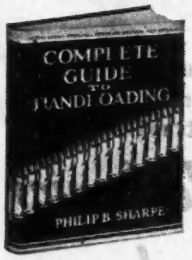

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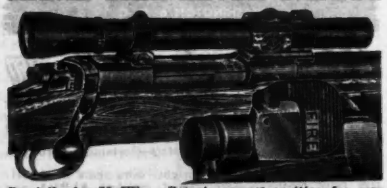

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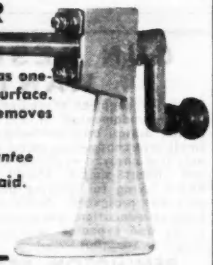

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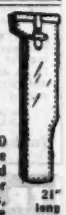

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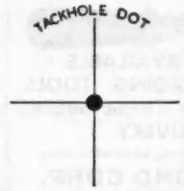

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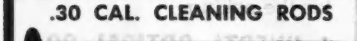

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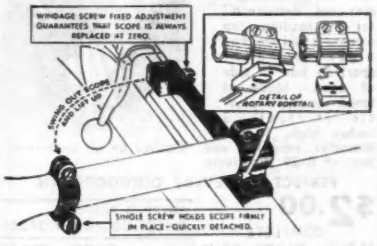
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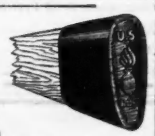

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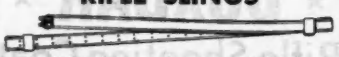

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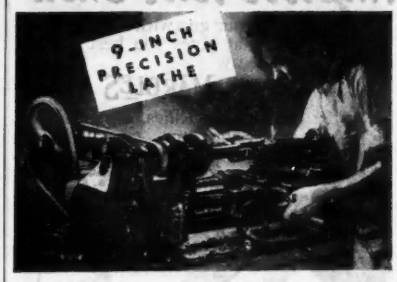

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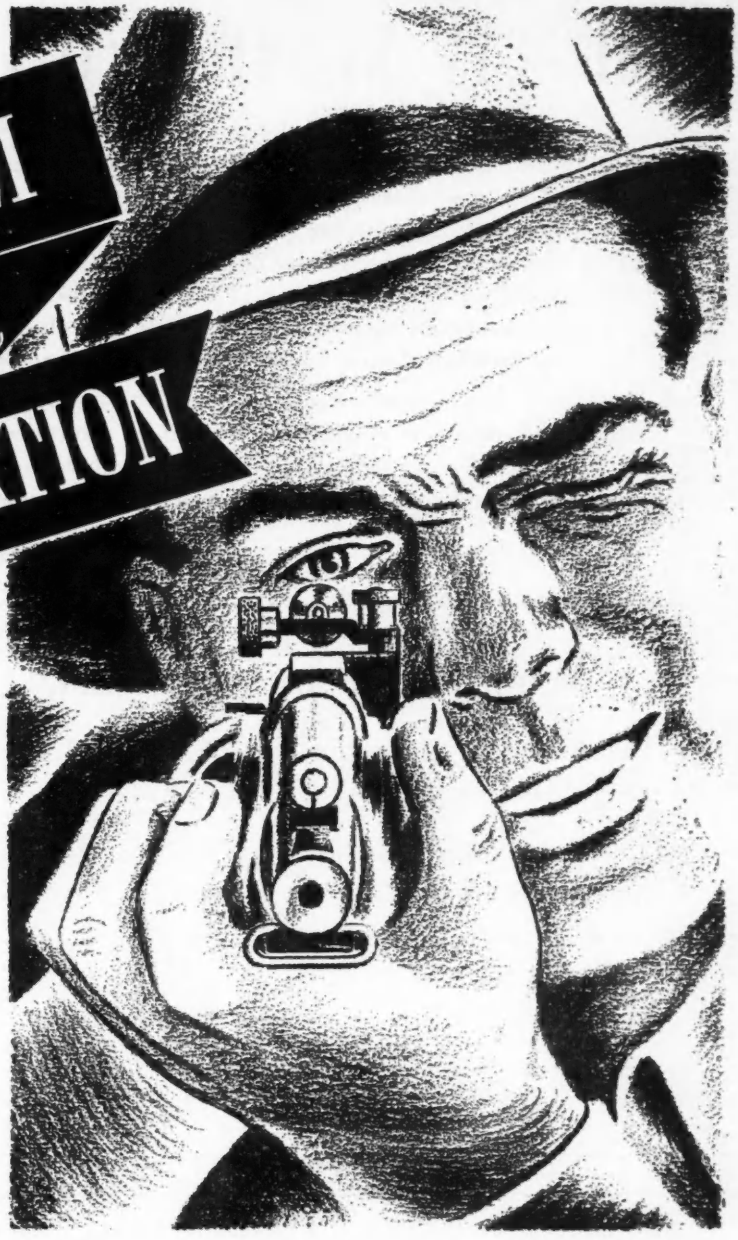

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